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2. Introduction

If there is one topic that has drastically affected human society in the last decades, it definitely is the global pandemic caused by COVID-19. As a result, there has never existed a higher desire to create a vaccine in order to combat any virus in the entire world. Therefore, this academic paper is going to analyze the valuation of Pfizer Inc., which was the first company that has discovered and fabricated a vaccine against the COVID-19 virus.

Firstly, we are going to shortly explain the methodology utilized in order to analyze the valuation of Pfizer. This will be followed by the description of the pharmaceuticals & biotechnology sector through Porter´s Five Forces Model, the PESTEL analysis as well as a comparison between the most important COVID-19 manufacturers. Next, the paper will enter the financial analysis of the company, which has been mainly divided into three sections, namely the key financial ratios of the enterprise, the relative valuation by examining the key multiples and the long-term trends of the firm by reviewing their performance of the last fifteen years. Following that, we are going to calculate Pfizer´s valuation per share for the next five years, and hence compare it to the firm´s market valuation to determine whether the firm is overvalued or undervalued. Lastly, we are going to briefly indicate the limitations we must face when calculating the company´s value and consequently explain the conclusion of the academic bachelor thesis.

3. Methodology

Regarding section four and five from the index, most of its analysis is based on the European Union report regarding the post-COVID-19 value chains (Raza *et al.*, 2021), the book "Organization theory and design" (Daft and Armstrong, 2008), and Pfizer´s annual report from 2020, in order to get a better understanding of the pharmaceutical industry and Pfizer´s position within it. When it comes to the different vaccine competitors, the paper especially utilized medicine websites such as "Yale Medicine" or the US government Center for Disease Control and Prevention, to have a specific barometer to objectively compare and assess the pros and cons of each COVID-19 vaccine.

Concerning the financial analysis composed by section seven, eight, and nine, we have employed five main bibliographies, namely "Valuation for M&A: Building and Measuring Private Company Value" (Mellen and Evans, 2018); "Navigating the Business Loan: Guidelines for Financiers, Small-Business Owners, and Entrepreneurs" (Glantz, 2014); "The Art of Company Valuation and Financial Statement Analysis: A Value Investor's Guide with Real-Life Case Studies" (Schmidlin, 2014); the Corporate Finance Institute webpage and finally "Valuation: Theories and Concepts" (Kumar, 2015). With respect to that, the most used source has been Kumar´s book, mainly because it displayed not only theoretical concepts, but also applied lots of practical cases in order to better understand and analyze Pfizer´s values.

Lastly, the paper used the same bibliography for the valuation calculation as in the financial analysis part, with the addition of the book "Fusiones, adquisiciones y valoración de empresas" (Mascareñas, 2011), as well as "Corporate Valuation : Measuring the Value of Companies in Turbulent Times" (Massari *et al.*, 2016). in order to better determine whether Pfizer´s valuation has been overestimated or not.

4. Industry description

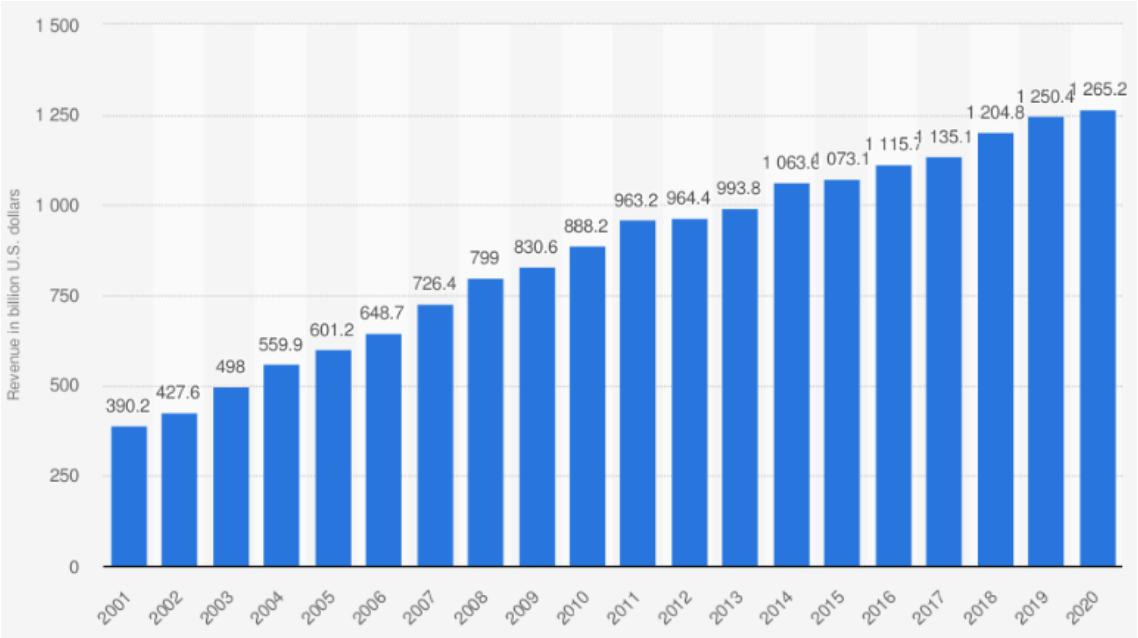
It is undeniable to state the fact that COVID-19 has completely changed our perception of our common everyday activities. The virus has led to terrible consequences such as more than 2,5 million deaths in the world and an upcoming financial crisis. To be exact, several experts claim that this "economic impact of COVID-19 will cut deeper than any recession in living memory" (Bremmer, 2020). Nevertheless, there is one sector that will benefit from this global pandemic, namely the pharmaceuticals & biotechnology sector. In fact, the pharmaceutical market showcases an ongoing exponential increase in revenues from 2001 till 2020 (IQVIA, 2021), as we can see in Table 1. With compliance to that, the "global pharmaceutical manufacturing market size was valued at USD 324.42 billion in 2019 and is expected to grow at a compound annual growth rate (CAGR) of 13.74% from 2020 to 2027" (Grand View Research, 2021). In other words, we can characterize the industry as an attractive and fiercely competitive one, in which innovation through heavy R&D investments are key in order to develop a competitive advantage (EFPIA, 2020).

Regarding the products of the market, we must differentiate between two main pharmaceutical drugs, namely the brand-name and the generic drug. The brand-name drug is a "drug sold by a drug company under a specific name or trademark and that is protected by a patent" (HealthCare.gov, 2021). Concerning the second medicine, it is the generic drug, which "is a medication created to be the same as an existing approved brand-name drug in dosage form, safety, strength, route of administration, quality, and performance characteristics" (FDA, 2021). In other words, the "difference between a brand-name product and a generic one is designed to be transparent" (Mogalian and Myrdal, 2021), because "once the patent life expires on a brand-name drug product, it is eligible to be made into a generic drug." (Mogalian and Myrdal, 2021). Concerning the production, it depends on the type of pharmaceutical drug, "the production process may include advanced IT elements such as software development or more general industrial competencies" (Raza *et al.*, 2021).

With respect to that, the pharmaceuticals & biotechnology sector is characterized by its patents. Their main attribute is that they possess a property right granted to an inventor for an invention, which excludes others from making, using, or selling the creation for a specific period of time (Stedeford, 2009). Having said that, the particularity of the pharmaceutical sector is that, unlike other industries, the patent usually is the product itself (Kumazawa, 2017). When it comes to the duration, pharmaceutical companies receive 20 years for their patents, but because R&D can endure up to 15 years alone this inevitably leaves the drugs with a very short time frame to operate, plus once the 20-year exclusivity period is over, generic competitors can enter the market and compete with the branded drug on price (Nawrat, 2019).

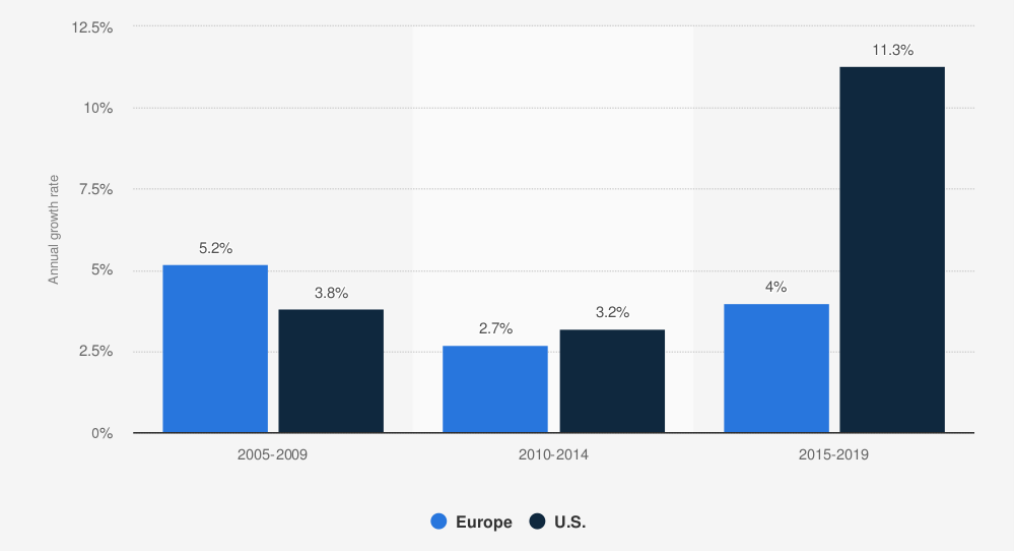
Lastly, we must highlight how the COVID-19 health crisis has reshaped the pharmaceuticals & biotechnology sector. For example, Europe´s "imports of protective garments and similar products grew by 185% (EUR 18.7 billion), an increase which can be largely attributed to the 1462 % growth in facemask imports from EUR 1.1billion to EUR 17.2billion" (Raza *et al.*, 2021). According to that, China has proven to be one of the countries that benefitted the most from the virus, given the fact that the "EU and US dependence on China only increased during the pandemic" (Zeiger, 2020). Nevertheless, it would be an error to believe that the pharmaceuticals & biotechnology sector will become one-sided, as several countries are seeing the opportunities this market has to offer and as a result "tend to be both importers and exporters of PPE (Protective Personal

Equipment) and medical devices" (Raza *et al.*, 2021).**Table 1: Revenue of the worldwide pharmaceutical market**



Source: (IQVIA, 2021)

Table 2: Annual growth of pharmaceutical R&D spending in Europe and the U.S



Source: (EFPIA, 2020)

4.1 Porter´s Five Forces Analysis

Concerning Porter´s 5 Forces, it is a model utilized in order to "determine an industry's long-term profitability" (Marburger, 2012). In this case, we have divided the different forces as follows:

- The Threat of New Entrants:

  The key to understand here, is that this force mainly depends "on the amount and extent of potential barriers" (Daft & Armstrong, 2008) to entry. With respect to that, the pharmaceutical & biotechnology sector is composed by "high costs required to enter the industry" (Kasapi & Mihiotis, 2011), such as CAPEX or R&D. Furthermore, it is also quite difficult for new entering enterprises to access the necessary distribution channels (Kasi, 2017). Therefore, we can claim that the threat of new entrants is relatively low.

- The Power of Suppliers:

  Regarding the power of suppliers, it is affected by powerful suppliers that "can charge higher prices, limit services or quality, and shift costs to their customers, keeping more of the value for themselves" (Daft & Armstrong, 2008). However, this threat is very low for Pfizer, given the fact that they are not too dependent on specific suppliers because they have "supplier management activities in place to monitor supply channels and to take action as needed to secure necessary volumes" (Pfizer, 2021).

- The Power of Buyers:

  An example to simplify this force is, when "the number of buyers of a product or service increases, the bargaining power of any individual buyer decreases" (Evans and Neu, 2008) and vice versa. In general terms, customers are not too aware of the differentiation and cost of pharmaceutical products (Kasi, 2017), and as a consequence do not possess enough power to affect the pricing of these products. However, the government is a key player that can influence the pricing of Pfizer´s Covid-19 vaccines in the upcoming future, due to the possibility of waiving the patent protections (Macias *et al.*, 2021) caused by the pandemic. Therefore, we can state that the power of buyers is moderate, because of the fact that citizens are less powerful, and governments can clearly affect the final price of Pfizer´s products.

- The Threat of Substitutes:

A substitute is known to be a good or service that satisfies the same need as the product it is emulating and as a result, it "can reduce industry attractiveness and profitability because they put a constraint on price levels" (Hollensen, 1998). In this case, Pfizer as well as other pharmaceutical giants "are under intense pressure from generic competition as patents on numerous popular drugs have expired in recent years" (Daft & Armstrong, 2008). Nonetheless, this only applies to certain older products that are being replaced through new innovation, whereas there is still a significant lack of availability of substitutes for health-related products in the pharmaceuticals & biotechnology sector (Kasi, 2017). In other words, the threat of substitutes is moderate.

- Rivalry among Existing Competitors:

  With reference to the last force, it is "influenced by the preceding four forces" (Daft & Armstrong, 2008) and as a result, it measures the power of competitors in its given industry. When it comes to Pfizer, they showcase a market share of 12.08% in the first quarter of 2021 as we can see in Figure 1, which is a good result considering how fiercely competitive the pharmaceuticals & biotechnology sector actually is. In addition, other key competitors are Abbott Laboratories and Johnson & Johnson with 11,21% and 24,4% market share respectively (CSIMarket, 2021). Therefore, we can verify that Pfizer´s "business is conducted in intensely competitive and often highly regulated markets" (Pfizer, 2021), which implies that the rivalry among competitors is high.

Figure 1: Pfizer´s Market Share

Source: CSIMarket

5. Pfizer´s PESTEL Analysis

In order to determine Pfizer´s position in the pharmaceuticals & biotechnology sector, we are going to employ an analysis through the PESTEL model. Regarding the PESTEL analysis, it is a tool used to examine how political, economic, social, technological, environmental, and legal factors affect an enterprise in their industry (Fosher, 2018). The different factors have been analyzed in the following section:

- Political

  When it comes to political factors, Pfizer is subject to extensive regulation by government authorities in the countries they operate in, which includes laws and regulations that must be fulfilled in order to prevent penalties such as orders to stop non-compliant activities, criminal charges, warning letters, etc. (Pfizer, 2021). In other words, Pfizer must comply with all the given jurisdictions of different countries to not harm the firm´s compliance and reputation.

- Economic

  Being a multinational enterprise that runs its operations in the entire world, Pfizer must be susceptible to several economic risks, such as "currency fluctuations, capital and exchange controls, and global economic conditions" (Pfizer, 2021). Furthermore, the company must maintain efficient productivity in order to minimize operational costs and increase sales.

- Social

  According to Pfizer´s environmental, social, and governance (ESG) report, the company is of the mindset that if they "abide by core values such as equity and courage and make ethical decisions" (MarketScreener, 2021) this will result in a competitive advantage for them. Furthermore, Pfizer was the first company to issue a sustainable bond in 2020 in order to support vulnerable citizens to "address global public health emergencies" (Pfizer, 2021).

- Technological

  Concerning the technological factors, Pfizer heavily relies on sophisticated information technology systems in order to prevent breaches of its information security (Pfizer, 2021). Moreover, they implement digital technology to assist their commercial, manufacturing, and R&D operations (Pfizer, 2021). Lastly, and most importantly, the company especially invested in technology in order to achieve advances in both biological science and digital technology to enhance the delivery of breakthrough new medicines and vaccines (Pfizer, 2021).

- Environmental

  With reference to the environmental factors, Pfizer claims in their annual reports that their "operations are affected by national, state and/or local environmental laws" (Pfizer, 2021). To be more concrete, the company is well aware of the importance of maintaining a healthy environmental reputation, and as a result, they invested "$42 million in environment-related capital expenditures and $120 million in other environment-related expenses (Pfizer, 2021).

- Legal

  Concerning the legal aspects, there is rarely an industry that is more involved in legal procedures than the pharmaceuticals & biotechnology sector. As a matter of fact, Pfizer engages in "various legal proceedings, including patent litigation, product liability and other product-related litigation, including personal injury, consumer, off-label promotion, securities, antitrust and breach of contract claims" (Pfizer, 2021).

6. Vaccine COVID-19 competitors

We will compare the four most common types of COVID-19 vaccines, by taking a closer look at their technology used to produce them, their effectiveness, and their perceived security from the public. To be more specific, this section will analyze the vaccines of Pfizer, Moderna, AstraZeneca, and Johnson & Johnson.

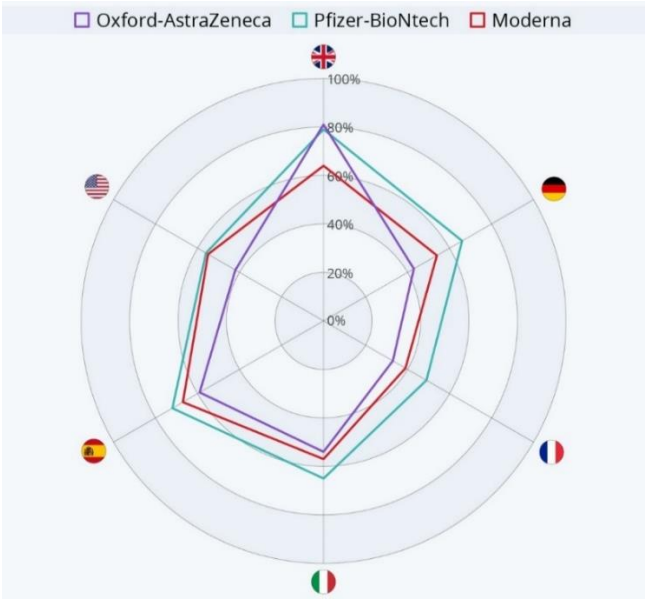
Regarding Pfizer and Moderna, both utilize mRNA technology for their vaccines, whereas AstraZeneca´s and Johnson & Johnson´s vaccines are created through the traditional approach (Smith, 2021). With respect to that, both productions have their pros and cons. For one, the mRNA vaccine is a revolutionary new type of vaccine that teaches our cells how to produce antigens, whereas with the conventional approach the antigens are injected into the patients (CDC, 2021). Nonetheless, mRNA vaccines need colder temperatures in order to be stored. For instance, Moderna´s and Pfizer´s vaccines must be stored at -4°F and -94°F, respectively, whereas Johnson & Johnson´s and AstraZeneca´s vaccines are easier to store at temperatures between 36°F and 46°F (Smith, 2021). In addition to that, mRNA vaccines also exhibit more problems when it comes to shipping because they need colder temperatures than traditional vaccines. To be more specific,

Pfizer had to transport their vaccines in ultra-cold temperature-controlled units at -94 degrees Fahrenheit (Katella, 2021).

Next, we must view the respective effectiveness of the four different Covid-19 vaccines. The most effective vaccine so far has been Pfizer-BioNTech which has reported an effective rate of 95% to prevent COVID-19 and 100% effective at preventing severe diseases (Katella, 2021). The second most effective vaccine is Moderna with a rate of 94,1% to generally prevent COVID-19, however, this value drops to 86,4% effectiveness for those patients that are 65 years old or older (Katella, 2021). Regarding the traditional vaccines, AstraZeneca and Johnson & Johnson occupy third and fourth place and exhibit an effective rate of 76% and 66% respectively. In other words, mRNA vaccines are more effective than conventional vaccines.

Lastly, we must analyze the popularity and perception of the safety of the respective vaccines. In Figure 2 we can see a direct safe perception comparison between Pfizer-BioNtech, Oxford-AstraZeneca, and Moderna, which clearly shows that the mRNA vaccines are clearly more popular than the traditional Oxford-AstraZeneca vaccine alternative. To be more concrete, this result makes complete sense, given the fact that as our analysis has shown, mRNA vaccines are more secure and efficient to battle COVID-19, and as a consequence, their popularity increases.

Figure 2: Vaccines´creation is viewed differently by the public



Source: (Armstrong, 2021)

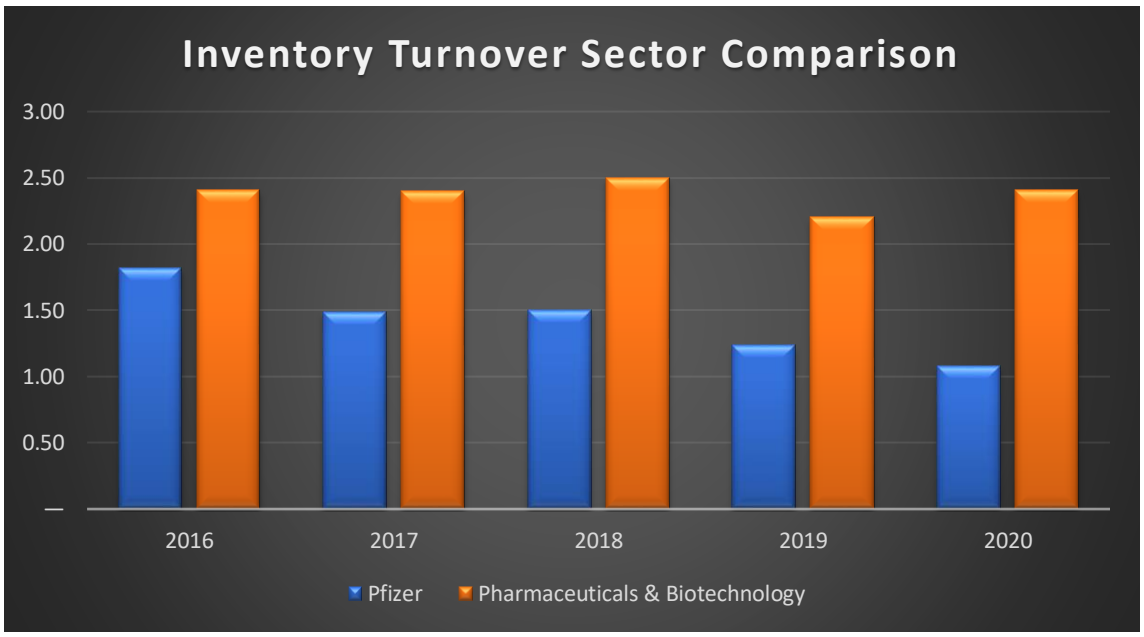
Now that we have investigated and acknowledged the main characteristics of the pharmaceuticals & biotechnology sector, we will broaden the paper by analyzing the main financial aspects in order to determine the valuation of Pfizer Inc.

7. Financial Ratios

7.1 Short-term activity

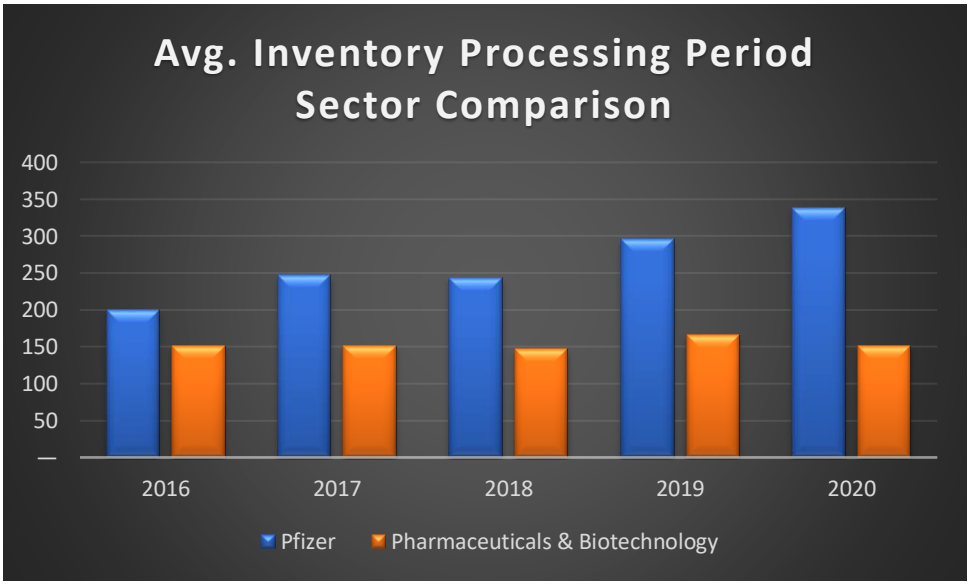
Firstly, we will start analyzing Pfizer´s inventory turnover, which is key to measure "the company's inventory management efficiency by calculating the number of times the average inventory is converted into receivables or cash during the year" (Mellen & Evans, 2018). When taking a glance at Pfizer´s inventory turnover figures, we can clearly identify that this number has continuously dropped from 2016 till 2020. This is due to two different reasons. Firstly, their cost of sales dropped greatly from $12.329 million in 2016 to $8.692 million in 2020. The second reason is the increase of their inventories on hand, to be more exact their inventories increased from $6.783 million to $8.046 million from 2016 to 2020. These numbers are a bad sign because a "poor inventory turnover could cripple the profitability" (Mellen & Evans, 2018), due to the fact that lower cost of sales indicate that they have sold fewer products, which can be validated by the fact that their inventories on hand have increased. In other words, they are stocking up inventory because they are not able to sell as much as they want to. When we take a closer look at the pharmaceuticals & biotechnology sector, we can see that it exhibits a stable inventory turnover with a value of 2,41 in 2016 and 2020 respectively. Plus, if we look at Figure 3, we can state the fact that except for 2019, the sector had a similar inventory turnover value year after year. Inevitably, this means as shown in Figure 4, that Pfizer has a higher average inventory processing period than the sector, which indicates "that the company may be carrying excessive inventory" (Mellen & Evans, 2018). Nevertheless, we can all agree that 2020 has been a quite unique year which has caused several issues such as "impacts due to travel limitations and mobility restrictions; manufacturing disruptions and delays; supply chain interruptions" (Pfizer, 2021) and therefore it is more than likely that Pfizer will experience great improvements for their fiscal year 2021.

Figure 3: Inventory Turnover Sector Comparison



Source: Calculation from Pfizer´s Financial Statements

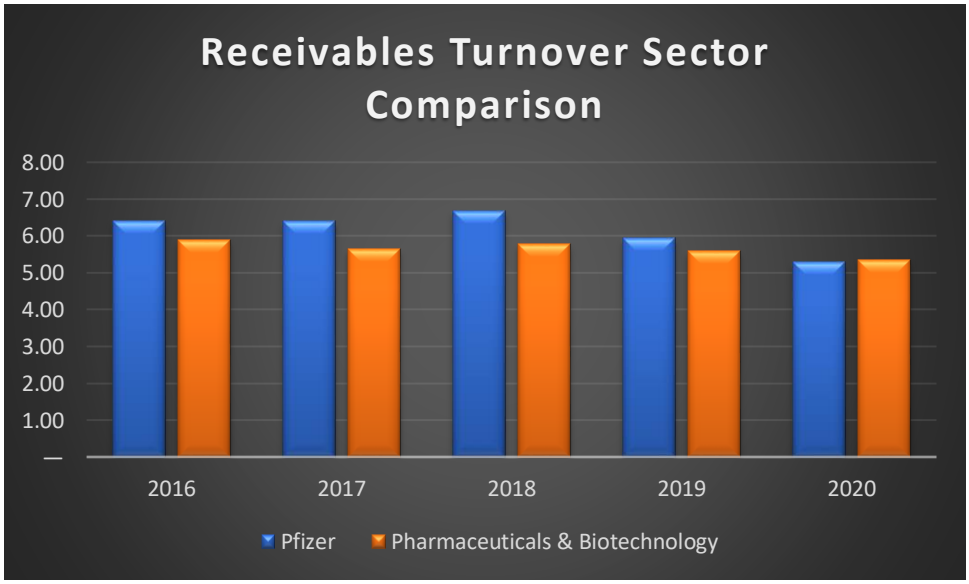
Figure 4: Avg. Inventory Processing Period Sector Comparison



Source: Calculation from Pfizer´s Financial Statements

The next ratio to be examined is the receivables turnover ratio, which is calculated by dividing the company´s revenues by its accounts receivables. The idea is that the "higher the turnover of receivables, the shorter the time between the recognition of revenue and cash collection" (Mellen & Evans, 2018). In this case, Pfizer showcases a solid receivables turnover when we compare their figures to the ones of the pharmaceuticals & biotechnology sector from 2016 to 2020 in Figure 5. To be more concrete, Pfizer exhibits a higher receivables turnover from 2016 till 2019, except for the year 2020. Nevertheless, we can state the fact that 2020 is only a bump in the road for Pfizer, and we can therefore declare that they will keep showing a better receivables turnover than their competitors in the future. Hence, this is a great sign for Pfizer, given the fact that a greater ratio than the sector will imply a lower average receivable collection period than their competitors. In other words, "the sooner the firm is able to collect its accounts receivable, the firm would be able to pay off its own current liabilities" (Kumar, 2015).

Figure 5: Receivables Turnover Sector Comparison



Source: Calculation from Pfizer´s Financial Statements

Concerning Pfizer´s payables turnover, the first thing to notice is that there is a clear downward trend from 2016 to 2020, with values of 2,72 and 2,02 respectively. This ratio is composed of "dividing cost of goods sold by average inventory at the end of the financial year" (Malingu Achode and Rotich, 2016) and it helps to measure the time it takes a business to pay its creditors (Glantz, 2014). In this case, Pfizer is showcasing lower values than the pharmaceuticals & biotechnology sector, which is not the best sign

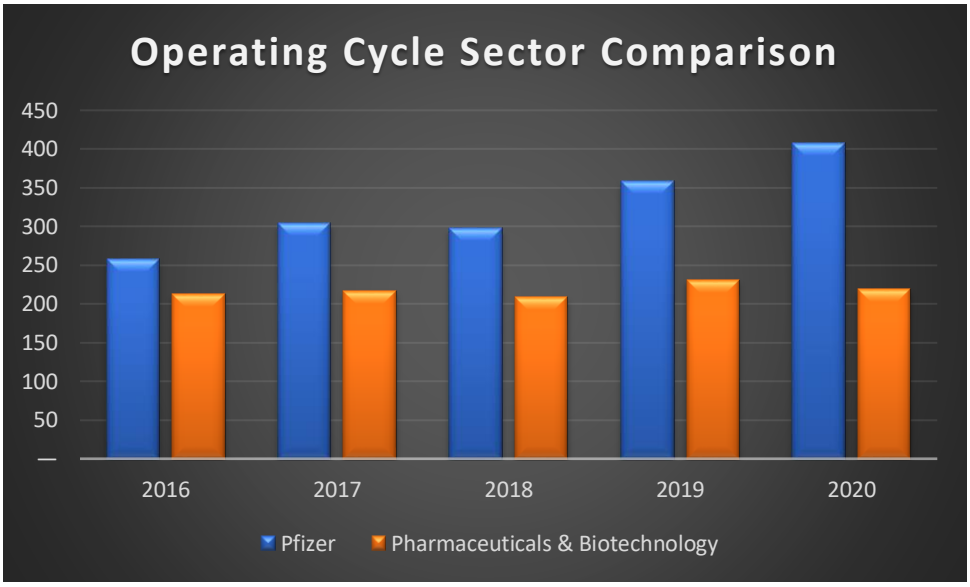
because “a declining payables turnover ratio indicates a larger accumulation over a longer period of spontaneous working capital financing provided by trade creditors” (Richards and Laughlin, 1980), in other words, they need longer time to pay-off their suppliers. This situation is reflected when we compare Pfizer´s average payables payment period to its sector. In fact, Pfizer´s average payables payment period has been quite stable from 2017 to 2019, except for 2020, which demonstrates that Pfizer has what it takes to turn this situation around and return to its stable pre-pandemic numbers. In addition to that, Pfizer claims in their 10-k that they have enough supplier management activities in place to ensure that their suppliers will be paid back in time.

Regarding Pfizer´s working capital turnover, we can see that they had better values than the sector from 2016 to 2018. Nevertheless, in 2019 its working capital was negative, which was consequently improved to a value of 4,58 in 2020, which is only slightly below the average of the pharmaceuticals & biotechnology sector. This is a great indicator, that shows that Pfizer is on its path to surpass the working capital turnover of its competitors in the near future. Furthermore, having “sufficient working capital is essential to meet operating needs along with supplier and short-term debt obligations” (Glantz, 2014). Therefore, we can claim that Pfizer is on a good path.

Last but not least, we must talk about Pfizer´s operating cycle as well as its cash conversion cycle. With respect to the operating cycle, it is the sum of the average inventory processing period and the average receivable collection period. Pfizer showcases an increasing operating cycle from 2016 to 2020 in Figure 6, which is mostly caused as we explained before by the increase of its inventory on hand and the reduction of cost of sales. However, it is quite likely that their sales will increase in 2021, due to their COVID-19 vaccine. That´s why they will exhibit a higher inventory turnover and as a consequence a lower average inventory processing period, which will translate into a lower operating cycle. Concerning Pfizer´s cash conversion cycle, it “shows how long the capital is actually tied up in inventory and receivables less outstanding payables” (Schmidlin, 2014). In other words, it can indicate the level of a company´s liquidity, effective management of inventory, and its credit sales. The company clearly exhibits an increasing trend in its cash conversion cycle in comparison to its sector, which is not a good sign. However, as we have explained before, Pfizer has clearly suffered in 2020, as we have seen reflected in its lower sales, therefore we can clearly say that Pfizer has a

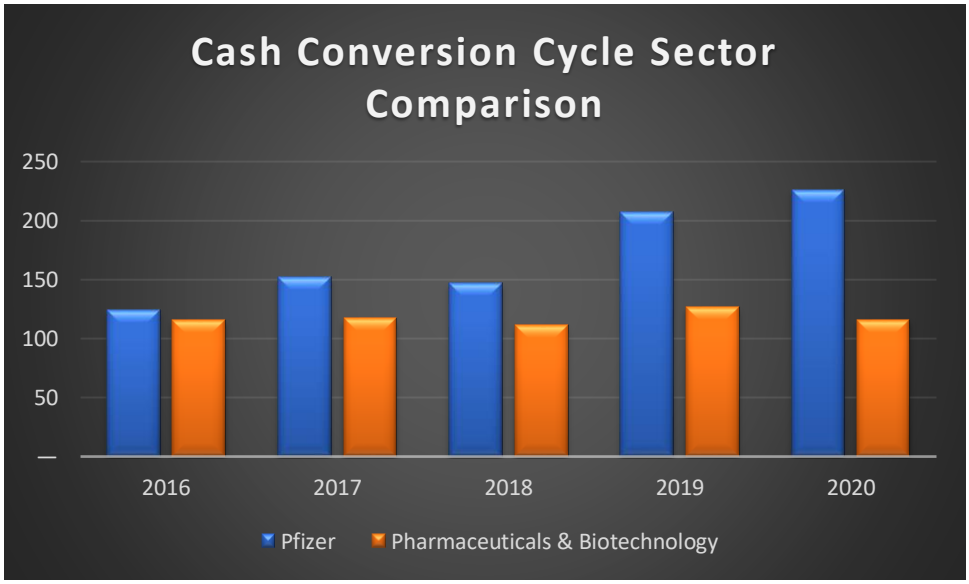
great potential to recover from last year and exhibit the same numbers as it has had in prior periods from 2016 to 2018.

Figure 6: Operating Cycle Sector Comparison



Source: Calculation from Pfizer´s Financial Statements

Figure 7: Cash Conversion Cycle Sector Comparison



Source: Calculation from Pfizer´s Financial Statements

7.2 Long-term activity

Regarding Pfizer´s long-term activity is key in order to determine the company´s long-term projection in a fiercely competitive industry as the pharmaceuticals & biotechnology one.

First of all, we will start analyzing Pfizer´s net fixed asset turnover. The main reason for that is because of the fact that investments in property, plant, and equipment are crucial in order to reduce cash flows once the company performs an investment. "As a result, cash generated by productive assets must offset initial investment outflows, producing a positive net present value" (Glantz, 2014) and consequently, it will exhibit the "cash flow quality and sustainability. (Glantz, 2014). In this case, both Pfizer and the pharmaceuticals & biotechnology sector showcase fluctuations in their results from 2016 till 2020. However, we can clearly state that the pharmaceuticals & biotechnology sector displays higher numbers in the time period from 2016 till 2020. Therefore, we can claim that Pfizer´s competitors are investing more into property, plant and equipment and as a consequence perform higher revenues than them. That being said, the main reason for Pfizer´s low value of 3,01 in 2020 is mainly because they have suffered a reduction in revenues of 19,02% and we can all agree that this is situation is going to be quite different in 2021 thanks to their new Covid-19 vaccine. For that reason, it is quite likely that Pfizer is going to perform better in terms of its sales, which is going to translate into a higher net fixed asset turnover for the upcoming future.

Table 3: Net Fixed Asset Turnover

Net fixed asset turnover	2016	2017	2018	2019	2020
Pfizer	3,97	3,79	4,01	3,71	3,01
Pharma. & Biotech.	4,20	4,08	4,22	4,11	4,07

Source: Calculation from Pfizer´s Financial Statements

Secondly, we are going to take a closer glance at Pfizer´s total asset turnover. In this case, a high "asset turnover means that capital flows back quickly into the business and less capital is therefore needed altogether in order to achieve a certain business volume" (Schmidlin, 2014). Here we must concede, that even though Pfizer displays quite stable figures from 2016 to 2019, their numbers are below the pharmaceuticals & biotechnology sector. In addition to that, Pfizer once again shows that 2020 has not been their best year.

Nevertheless, this decrease was mainly caused due to Pfizer´s decrease in sales, which represents the numerator of the total asset turnover. Therefore, we can allege the point that Pfizer will increase its total asset turnover during this upcoming year 2021, due to an increase in its sales because of their launch of the COVID-19 vaccine.

Table 4: Total Asset Turnover

Total asset turnover	2016	2017	2018	2019	2020
Pfizer	0,31	0,31	0,34	0,31	0,27
Pharma. & Biotech.	0,42	0,41	0,46	0,40	0,40

Source: Calculation from Pfizer´s Financial Statements

Lastly, we must focus on the company´s equity turnover, in order to examine "the efficiency with which management is using equity to generate revenue" (Bragg, 2020). In this case, we can see that Pfizer overall exhibited an equity turnover over 80% in 2016, 2018 and 2019. This time we have two exceptions. The main reason for the lower value in 2017 is due to an increase of the company´s equity of 19,76%. However, Pfizer reacted and decided to reduce its equity amount by 11,08%, which inevitably led to a higher equity turnover for the two following years. Regarding the lower equity turnover of 2020, the company experienced as mentioned before a significant reduction in its sales of 19,02% and as a result exhibits a value of 0,66.

Table 5: Equity Turnover

Equity turnover	2016	2017	2018	2019	2020
Pfizer	0,89	0,74	0,85	0,82	0,66
Pharma. & Biotech.	1,12	1,17	1,41	1,28	1,32

Source: Calculation from Pfizer´s Financial Statements

7.3 Liquidity

Analyzing a company´s liquidity is one of the most important steps in a company´s valuation. The main reason for that is because it explains the company´s short-term funding, plus it also asserts "whether or not a business is carrying too many current assets on its balance sheet" (Schmidlin, 2014).

Firstly, we must analyze Pfizer´s current ratio to examine "the relationship between current assets and current liabilities" (Kumar, 2015). As we can see, Pfizer exhibits an

increase of 0,88 in 2019 to a value of 1,35 in 2020. This is great news, due to the fact that the pharmaceuticals & biotechnology sector has decreased its current ratio during those two years. To be exact, Pfizer unlike its competitors, was able to reduce its current liabilities during 2020. That´s why they managed to reach pretty much the same current ratio with a value of 1,35 as its sector which had a value of 1,37.

Table 6: Current Ratio

Current ratio	2016	2017	2018	2019	2020
Pfizer	1,25	1,35	1,57	0,88	1,35
Pharma. & Biotech.	2,10	1,82	1,73	1,57	1,37

Source: Calculation from Pfizer´s Financial Statements

The next step is to examine the quick ratio, which determines if a firm is able to "pay off short-term obligations without depending on sale of inventories" (Kumar, 2015). In this case, all values for Pfizer are below one from 2016 to 2020, which indicates that the company heavily relies on its inventory sales. However, the pharmaceuticals & biotechnology sector quick ratio has a decreasing trend from 2016 to 2020, which shows that the overall industry is becoming more reliant on its inventory sales.

Table 7: Quick Ratio

Quick ratio	2016	2017	2018	2019	2020
Pfizer	0,84	0,93	0,84	0,50	0,78
Pharma. & Biotech.	1,64	1,41	1,28	1,18	0,96

Source: Calculation from Pfizer´s Financial Statements

Finally, we have to analyze the cash ratio. The main reason for the usage of this ratio is because of the fact that it "is the best indication of a company's ability to cover its short-term obligations when in an emergency" (Affandi, Sunarko and Yunanto, 2019). At first one might think that Pfizer does not have enough cash to finance its short-term debt in comparison to its competitors. However, this is not completely true, because the industry exhibits a negative cumulative growth rate of -14,96% from 2016 to 2020, whereas Pfizer just showcases a negative cumulative growth rate of -3,78% during those five years. Obviously having a negative growth rate is not the best scenario, but the good news is that Pfizer´s competitors are experiencing worse cash results year after year. In addition

to that, Pfizer have reduced their cash ratio in 2019 and 2020 mainly because they engaged in fewer short-term investments than from 2016 to 2018.

Table 8: Cash Ratio

Cash ratio	2016	2017	2018	2019	2020
Pfizer	0,57	0,66	0,59	0,26	0,47
Pharma. & Biotech.	1,23	1,01	0,90	0,81	0,58

Source: Calculation from Pfizer´s Financial Statements

7.4 Solvency

Now we will analyze several financial leverage ratios in order to examine whether Pfizer has the "capacity to meet interest and principal payments in the long term" (Kumar, 2015).

Firstly, we will take a closer look at Pfizer´s debt-to-equity ratio, which as the name already indicates is just calculating the total debt by the total company´s equity. In this case, Pfizer is showing great results from 2016 to 2020. To be exact, they manage to decrease from 0,71 in 2016 to 0,63 in 2020, which means that the company was able to reduce its risk over this five-year span by not growing through debt. In addition to that, the pharmaceuticals & biotechnology sector is exhibiting a clear increase in its debt-to-equity ratio by increasing from 0,84 to 1,2 in only five years. In other words, Pfizer´s competitors are indicating clear signs of risk, given the fact that they have been quite aggressive in financing their growth through debt (Young, 2020). The key aspect to highlight here is that Pfizer has been able to reduce risk over the years, unlike most of their other competitors.

Table 9: Debt-to-Equity

Debt to equity	2016	2017	2018	2019	2020
Pfizer	0,71	0,61	0,66	0,83	0,63
Pharma. & Biotech.	0,84	0,94	1,00	1,12	1,20

Source: Calculation from Pfizer´s Financial Statements

Secondly, we will take a closer glance at the debt-to-capital ratio, which is based on the total debt divided by the sum of total debt and equity. In this case, we can clearly see that Pfizer´s values are below the sector´s values each year, which indicates that Pfizer is less

risky than its competitors in the pharmaceuticals & biotechnology sector. The main reason that Pfizer is less risky, is because they must pay back less debt than their competitors, which can be validated by the debt-to-equity ratio we calculated before that demonstrated that Pfizer relies less on debt financing than their competitors. However, there are two sides to the same coin, because debt is a more affordable source to finance operations than shareholder´s equity. In addition to that debt investors usually ask for higher returns due to several risks, whereas debt usually has lower rates (Berman and Knight, 2009).

Table 10: Debt-to-Capital

Debt to capital	2016	2017	2018	2019	2020
Pfizer	0,41	0,38	0,40	0,45	0,39
Pharma. & Biotech.	0,46	0,48	0,50	0,53	0,54

Source: Calculation from Pfizer´s Financial Statements

Concerning Pfizer´s debt-to-assets ratio, the first thing to notice is that Pfizer´s numbers are lower from 2016 to 2020 than its competitors. In this case, the ratio "indicates the percentage of assets that are being financed with debt" (CFI, 2021). In other words, Pfizer´s lower ratios compared to its adversaries mean a lower leverage degree, which implies less risk to invest in the company.

Table 11: Debt-to-Assets

Debt to assets	2016	2017	2018	2019	2020
Pfizer	0,25	0,25	0,26	0,31	0,26
Pharma. & Biotech.	0,31	0,32	0,32	0,35	0,36

Source: Calculation from Pfizer´s Financial Statements

Next, we must compare Pfizer´s financial leverage with its competition. The calculation is composed of total assets divided by total equity and its intention is to show the rate at which assets have been financed by the company´s shareholders. (Bragg, 2020). As we can see, Pfizer exhibits except for 2016, lower values than its competitors, which implies that Pfizer slightly uses more equity than its competitors to fund its assets.

Table 12: Financial Leverage

Financial leverage	2016	2017	2018	2019	2020
Pfizer	2,88	2,41	2,51	2,65	2,44
Pharma. & Biotech.	2,67	2,89	3,08	3,18	3,34

Source: Calculation from Pfizer´s Financial Statements

The fifth ratio in this section is the interest coverage ratio. Its purpose is to measure "the firm's capacity to meet interest payments from its predebt and pretax earnings" (Kumar, 2015) and it is calculated by diving the company´s EBIT by its interest expense. In this case, Pfizer managed to surpass the average of its competitive sector in 2019, but both Pfizer and its competitors fell short in terms of their interest coverage ratio due to COVID-19. However, if we look at the past years we can see that Pfizer´s interest coverage ratio had a positive cumulative growth rate of 43,09% from 2016 to 2019, whereas the pharmaceuticals industry is showing a decreasing interest coverage ratio year after year. That's why Pfizer has a great potential to surpass the sector´s average interest coverage ratio in the near future, which will be great for them because a higher ratio means that the company is more likely to pay its debt back (Mellen & Evans, 2018).

Table 13: Interest Coverage

Interest coverage	2016	2017	2018	2019	2020
Pfizer	8,04	10,69	10,03	12,23	6,17
Pharma. & Biotech.	12,62	10,99	10,29	11,09	7,17

Source: Calculation from Pfizer´s Financial Statements

Finally, we will examine the fixed charge coverage ratio to analyze Pfizer´s capacity to pay its fixed costs. It is calculated when we divide the sum of EBIT and fixed charges before taxes by fixed charges. This ratio is key, due to the fact that fixed charges include leases and insurance costs which play crucial roles in the pharmaceuticals & biotechnology sector. When we focus on the data from 2016 to 2020, we can see that Pfizer managed to surpass the industry average fixed charge coverage ratio in 2019, but due to COVID-19 Pfizer´s ratio dropped from 9,88 in 2019 to 4,98 in 2020, which is below the average value of its competitors in the sector. Nevertheless, we can clearly see that Pfizer showcased an increase over time in its fixed charge coverage ratio before the pandemic, and therefore is more than likely to repeat the same positive path in the near future.

Table 14: Fixed Charge Coverage

Fixed charge coverage	2016	2017	2018	2019	2020
Pfizer	6,64	8,76	8,34	9,88	4,98
Pharma. & Biotech.	10,29	9,13	8,63	9,00	5,90

Source: Calculation from Pfizer´s Financial Statements

7.5 Profitability

The next key aspect that we will focus on is Pfizer´s profitability, in order to measure "management's success at production and expense control, as well as its ability to counter economic and industry downturns" (Glantz, 2014).

The first profitability ratio to be examined is the gross profit margin. It "measures production success and is an integral part of the lending toolbox because it is especially adept at differentiating between temporary and structural problems" (Glantz, 2014). In this case, we can clearly see that Pfizer exhibits positive growth from 2016 to 2019, except for the pandemic year 2020. That´s why we can state the fact that once Pfizer recovers in 2021 it will display a higher gross profit margin than in 2020.

Secondly, we must focus on the operating profit margin. Its purpose is to show "the percentage of profit a company produces from its operations, prior to subtracting taxes and interest charges" (CFI, 2021). When taking a closer look, we can witness that Pfizer displays a constantly growing operating profit margin except for 2020. This was the year in which Pfizer performed its worst operating income, which was especially due to the company´s increase in R&D expenses in order to develop a COVID-19 vaccine. Therefore, we can claim the same reasoning as before. That is to say, once Pfizer increases its sales in 2021 and reduces its R&D expenses now that they have finally come out with a new vaccine, it is highly possible that the company will exhibit a greater operating margin than in 2020.

Thirdly we will interpret the net profit margin, which "explains the relationship between net income and sales" (Kumar, 2015). The first thing to notice is that Pfizer evidences a lot of volatility in this ratio. For instance, in 2017 they managed to reach a net profit margin of 40,55%, which was primarily due to a great reduction of Pfizer´s certain asset impairments that helped them to accomplish a higher net income that inevitably led to a higher net profit margin. The primary reason for the result of 2020, is due to a reduction

of sales, an increase in R&D expenses, as a major increase of certain asset impairments. All of these different reasons translated into a lower net income, hence a lower net profit margin of 22,95%.

Next, we will examine Pfizer´s Return on Equity, which is calculated by dividing the company´s net profit by the shareholders´ equity. This ratio is quite important because it "gives investors a figure that can be compared between different companies and investment opportunities" (Schmidlin, 2014). In this case, Pfizer shows quite volatile results, which are mostly caused due to different net incomes through the years, whereas its shareholder´s equity has been quite stable during the last five years.

Last but not least, we will analyze the Return on Assets, which reflects "the income earned per amount invested in the firm" (Kumar, 2015). As we can see, the company´s results are also quite volatile during this five-year span. The main ground for this is because once again Pfizer´s net income has been quite volatile over the years for the reasons mentioned before. However, as long as Pfizer will operate as they have done before the pandemic and as a result achieve higher net incomes, they will without a doubt display favorable results.

Table 15: Profitability Ratios

Profitability	2016	2017	2018	2019	2020
Gross profit margin	76,66%	78,61%	79,03%	80,25%	79,26%
Operating profit margin	22,73%	25,92%	26,10%	25,46%	19,47%
Net profit margin	13,66%	40,55%	20,79%	31,45%	22,95%
ROE	12,12%	29,88%	17,59%	25,77%	15,21%
ROA	4,20%	12,40%	7,00%	9,72%	6,23%

Source: Calculation from Pfizer´s Financial Statements

7.6 Dupont-Analysis

Next, we are going to analyze Pfizer´s Dupont model and compare them to two of their biggest competitors, namely Johnson & Johnson and Abbott Laboratories. The main reason I selected Johnson & Johnson, is because they are not only a fierce competitor in the pharmaceuticals & biotechnology sector, but they also developed a Covid-19 vaccine that has proven to be quite effective to battle the virus. To be more specific, their vaccine "was 85% effective in preventing severe disease and, most importantly, demonstrated complete protection against COVID-19 related hospitalization and death as of Day 28"

(Liu, 2021). Concerning Abbott Laboratories, they are a strong competitor that continuously invest in R&D in order to develop new health care products. As a matter of fact, “Abbott Laboratories Net Income in the 1 quarter 2021 grew year on year by 217.91%, faster than average growth of Abbott Laboratories' competitors of 58.71 %” (CSI Market, 2021).

Regarding the Dupont model, it is “used to examine a firm’s financial statements and financial performance” (McGowan *et al.*, 2015) by examining its Return on Equity through three different factors. “These factors are operating efficiency, which is measured by profit margin, asset efficiency which is measured by total assets turnover, and financial leverage which is measured by the equity multiplier” (Kumar, 2015). When taking a closer look at the net profit margin, we can clearly see that Pfizer has more operating efficiency because they display higher results than their competitors. The main reason for this is due to the fact that Pfizer accomplished higher EBIT margins than their competitors because Pfizer is more flexible when dealing with their expenses. With reference to the asset turnover, as we have already mentioned before in section 7.2 of long-term activity, Pfizer exhibits lower values than their average competitors. Nonetheless, this is not the case for Johnson & Johnson and Abbott Laboratories, who display higher figures than Pfizer and the average of the pharmaceuticals & biotechnology sector. In other words, Pfizer has less asset efficiency and is not able to benefit from its assets to generate as much revenue as their competition. Thirdly, we can see that from 2018 to 2020 Pfizer´s financial leverage is overall higher than Abbott Laboratories’ and lower than Johnson & Johnson´s. This implies that Pfizer in comparison to Johnson & Johnson “has been financed in a conservative manner, with a large proportion of investor funding” (Bragg, 2021) because as shown before in section 7.4, Pfizer relies less on debt financing than their competitors. In addition to that, this is exactly the opposite when comparing Pfizer to Abbott Laboratories, given the fact that Abbott manifests even lower values than Pfizer in their financial leverage. As a consequence of these different results, we can clearly state that Johnson & Johnson performed the highest return on equity from 2018 till 2020 as shown in the Table 16. The main cause for these results is because they maintained stable results with almost no volatility in the three-year span, unlike Pfizer who exhibited a significant decrease in their asset turnover and their financial leverage. Regarding Abbott Laboratories, although we can state that they have performed the

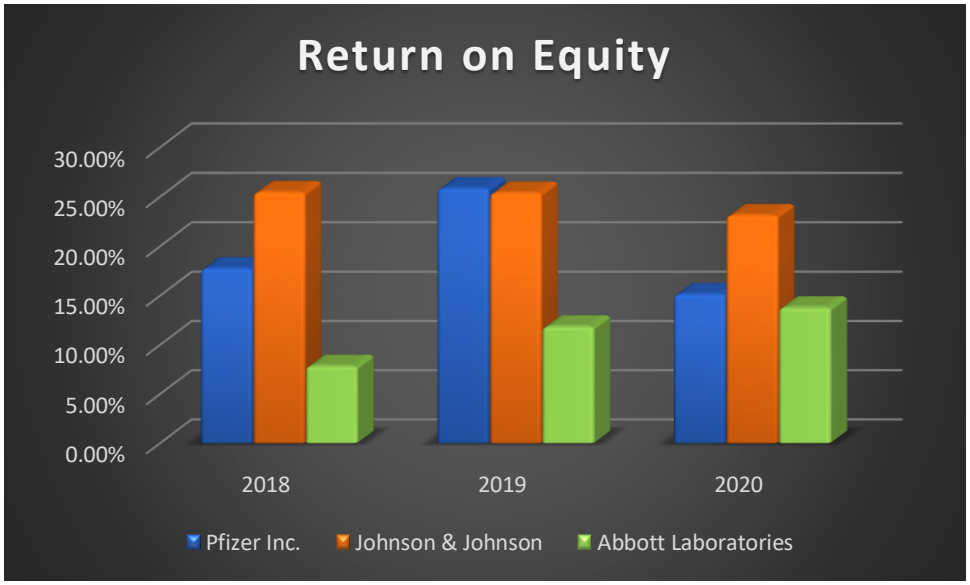
lowest return on equity among all three competitors, it is also true that they presented the only increasing results from 2018 till 200.

Table 16: Dupont Model

	Pfizer Inc.			Johnson & Johnson			Abbott Laboratories		
	2018	2019	2020	2018	2019	2020	2018	2019	2020
Net profit margin	20,79%	31,45%	22,95%	18,8%	18,4%	17,8%	7,74%	11,56%	12,99%
Asset Turnover	0,34	0,31	0,27	0,53	0,52	0,47	0,46	0,47	0,48
Financial Leverage	2,51	2,65	2,44	2,56	2,65	2,76	2,2	2,18	2,21
ROE	**17,7%**	**25,8%**	**15,1%**	**25,44%**	**25,38%**	**23,12%**	**7,83%**	**11,84%**	**13,78%**

Source: Calculation from Pfizer´s, Johnsons & Johnson´s and Abbott Laboratories´ Financial Statements

Figure 8: Return on Equity



Source: Calculation from Pfizer´s, Johnsons & Johnson´s and Abbott Laboratories´ Financial Statements

7.7 Return on Investment

Another key ratio to analyze is the return on investment (ROI) because it tells us whether the company is performing as efficiently as possible with the given assets that have been put into the business. First and foremost, we can acknowledge the fact that Pfizer has experienced a lot of volatility in terms of their return to investment from 2018 to 2020. Although it is true that they managed to have the highest ROI in 2019 in comparison to their two other competitors with a value of 11,5%, they also exhibited the worst value in

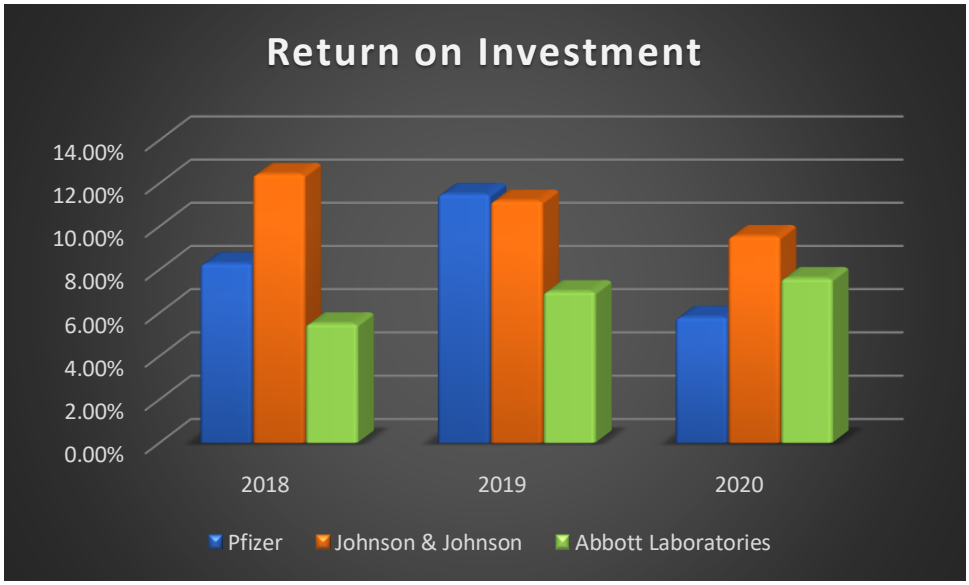
2020. This is primarily because Pfizer´s EBIT decreased by 53,54% from 2019 to 2020. In other words, Pfizer is not showcasing the best values, given the fact that "a higher positive ROI is a good thing because it indicates a more lucrative investment" (Fredman, 2021), whereas Pfizer´s numbers are decreasing. With respect to Johnson & Johnson, we can clearly see that overall, they were able to have the highest ROI in the three-year span, however, we can also see that the company is exhibiting a downward trend. In reference to that, this is not the case for Abbott Laboratories, which shows an increase in its ROI even during the Covid-19 crisis. As a result, we can claim that Pfizer is less predictable in terms of its return on investment in comparison to Johnson & Johnson and Abbott Laboratories.

Table 17: Return on Investment

ROI[1]	2018	2019	2020
Pfizer	8,3%	11,5%	5,8%
Johnson & Johnson	12,4%	11,2%	9,5%
Abbott Laboratories	5,5%	7,0%	7,6%

Source: Calculation from Pfizer´s, Johnsons & Johnson´s and Abbott Laboratories´ Financial Statements

Figure 9: Return on Investment



[1] EBIT/Total Assets (Schmidlin, 2014)

Source: Calculation from Pfizer´s, Johnsons & Johnson´s and Abbott Laboratories´ Financial Statements

7.8 Cash Flows

The next important step when evaluating the valuation of a business is to analyze the company´s cash flows. In this case, we must differentiate between three different types, namely the operating, investing, and financing cash flows. The operating cash flow is quite important because it proves "whether a firm's cash inflows from its business operations are sufficient to cover its everyday cash outflows" (Ross *et al.*, 1991). The first thing to notice about Pfizer´s operating cash flow is that they are experiencing a continuous decrease in their figures. The main reason for this is because of their negative changes in working capital over the years. In addition to that, Pfizer also experienced its lowest operating cash flow in 2020 because they exhibited the lowest net income from continuing operations before allocation to noncontrolling interests, caused by their decrease in sales of 19,02% due to the pandemic in 2020.

Table 18: Operating Cash Flow

	2016	2017	2018	2019	2020
Net income[2]	7.246	21.355	11.188	16.302	7.021
Deprec. & Amort.	5757	6269	6384	6010	4777
Changes in WC	2.898	(11.154)	(1.745)	(9.724)	(1.212)
CFO	**15.901**	**16.470**	**15.827**	**12.588**	**10.586**

Source: Calculation from Pfizer´s Financial Statements

Secondly, we must analyze Pfizer´s cash flow from investing activities, which is the cash that arises from the "cash inflow and outflow generated from sale and acquisition of fixed assets" (Gathu, 2018). In this case, we can firmly state that except for 2018, Pfizer showcases negative cash flows from investing activities from 2016 to 2017 and 2019 to 2020. This is a good sign for the company because it implies that Pfizer is constantly investing in new activities such as property, plant and equipment, or acquisitions of new businesses in order to grow in the future. In addition to that, we can see that Pfizer has invested more capital in 2020 because they are planning to recover as soon as possible from last year. For instance, Pfizer showcases their highest purchases in PP&E yet

[2] Net income from continuing operations before allocation to noncontrolling interests

because they are planning to increase their production for Covid-19 vaccines which is definitely going to be their cash cow product for 2021.

Table 19: Cash Flow from Investing Activities

	2016	2017	2018	2019	2020
Purchases of PPE	(1.823)	(1.956)	(2.042)	(2.176)	(2.252)
Purchases of S-t investments	(15957)	(14596)	(11677)	(6835)	(13805)
Purchases of L-t investments	(8.011)	(3.537)	(1.797)	(201)	(597)
Other investing activities	17.980	15.348	20.041	5.267	12.466
CFI	**(7.811)**	**(4.741)**	**4.525**	**(3.945)**	**(4.188)**

Source: Calculation from Pfizer´s Financial Statements

Lastly, we must focus on Pfizer´s cash flow from financing activities, which is mostly constituted by "the issuance and repayment of equity, payment of dividends, issuance and repayment of debt, and capital lease obligations" (CFI, 2021). In this case, Pfizer is exhibiting an increasing trend in its repayments from 2016 till 2020, with the exception of 2019, which is the lowest value in terms of the company´s reimbursements. The two most significant values of 2020 are, that the company has almost increased its principal payments on short-term borrowings by 3 and that they have performed a "decrease in purchases of common stock of $8.9 billion" (Pfizer, 2021). Regarding the first point, Pfizer decided to reduce the risk due to the pandemic by increasing their short-term borrowings instead of utilizing more long-term debt, and as a result, they had to repay more short-term borrowings than in prior years. Concerning the second point, it is quite surprising that they did not repurchase their shares. Usually, a company buys its own shares back as a sign to illustrate "that the company is facing very positive prospects that will place upward pressure on the stock price" (CFI, 2021). In accordance with that, Pfizer were the first to announce a Covid-19 vaccine, which led to an immense increase in their reputation. Therefore, it is quite surprising that they did not take advantage of this situation and as a result repurchased their common stock.

Table 20: Cash Flow from Financing Activities

	2016	2017	2018	2019	2020
Proceeds from S-t borrowings	7.472	8.464	3.711	16.455	12.352
Principal payments on S-t borrowings	(5.102)	(9.990)	(4.437)	(8.378)	(22.197)
Proceeds from issuances of L-t debt	10976	5274	4974	4942	5222
Principal payments on long-term debt	(7.689)	(6.154)	(3.566)	(6.806)	(4.003)
Purchases of common stock	(5.000)	(5.000)	(12.198)	(8.865)	—
Cash dividends paid	(7317)	(7659)	(7978)	(8043)	(8440)
CFF	**(8.921)**	**(13.035)**	**(20.441)**	**(8.485)**	**(21.640)**

Source: Calculation from Pfizer´s Financial Statements

7.9 Free Cash Flow to the Firm

Lastly, we will focus on the Free Cash Flow to the firm to finish this section. This cash flow is composed of the sum of the company´s operating cash flow, its interest expenses net of tax, and the deduction of the firm´s capital expenditures. The thing to point out is that we can view that Pfizer is exhibiting a decrease in its free cash flow to the firm from 2018 till 2020. This is not a good sign for the enterprise, given the fact that a lower free cash flow implies the company is less capable of paying its expenses and keeping the firm afloat (CFI, 2021). In accordance with that, Pfizer has especially suffered in 2020, because they exhibited their lowest operating cash flow yet. In addition to that, the increase of the company´s CAPEX has also led to a decrease in its free cash flow. Nevertheless, it is true that the values for 2020 are no surprise because the company was not able to operate on a continuous basis and therefore experienced their lowest operating cash flow so far. Moreover, the increase in capital expenditure will generate better productivity which consequently will lead to a higher CFO and as a result a higher FCFF.

Table 21: Cash Flow to the Firm

	2016	2017	2018	2019	2020
CFO	15.901	16.470	15.827	12.588	10.586
Interest expense net of tax	1.310	1.382	1.233	1.515	1.626
CAPEX	1.999	2.217	2.196	2.594	2.791
FCFF[3]	**15.211**	**15.635**	**14.864**	**11.509**	**9.421**

Source: Calculation from Pfizer´s Financial Statements

In summary, we can state the fact that overall Pfizer´s ratios in 2020 were quite different from prior years, which was mainly caused by the effects of the COVID-19 virus. The company exhibited lower sales than in its last five years, whereas its competitors managed to maintain similar figures from previous years. Therefore, Pfizer showcased worst results than its competition in terms of their operating cycle, cash conversion cycle and its liquidity. However, Pfizer also proved to be less risky than the average competitor of the pharmaceuticals & biotechnology sector, because of the fact that they rely less on debt to finance their operations. Additionally, the company also displays solid returns on investment in the past three years in comparison to its competitors, which proves the fact that it is a reliable company to invest in.

[3] Operating Cash Flow + Interest expense net of tax – Capital Expenditure

8. Relative Valuation

8.1 Enterprise Value

Concerning Pfizer´s enterprise value, it is composed of adding the company´s total equity, short-term borrowings, and its long-term debt, as well as the subtraction of the company´s cash and its short-term investments. In other words, it is the same as the "equity value plus net debt" (Fin-Wiser Advisory, 2018) and its purpose is to quantify "the value of the ongoing operations of a firm" (Kumar, 2015). To put it in another way it "can be viewed as a theoretical takeover price" (Loughran and Wellman, 2009) of the company. When taking a closer look, we can clearly see that Pfizer exhibits its up and downs during the last 5 years. From 2016 till 2018 we can see that the enterprise showcases an increasing enterprise value with the figures 227.277, 236.623, and 263.948[4], respectively. The primary reason for this increase is because of the fact that Pfizer incremented the value of their share price from 34,06 dollars per share in 2016 to 43,35 dollars per share in 2018, which inevitably led to an increase of approximately 8,96% CAGR in the company´s total equity during this time span. Nevertheless, the next following years of 2019 and 2020 highlight a decrease in the company´s enterprise value of 231.815 and 216.485 million dollars, respectively. This different scenario can be narrowed down to two different reasons. Firstly, the enterprise decreased its price per share significantly in comparison with the value of 2018 to $34,10 in 2019 and $33,82 in 2020. Secondly, Pfizer decided to reduce their total number of shares of common stock outstanding in 2019 and 2020. To be exact, in 2016 and 2017 for example, the company presented 5.951.872.174 and 5.952.864.751 number of shares of common stock outstanding respectively. This was not the case in 2019 and 2020, where Pfizer only showcased 5.547.639.005 and 5.577.629.491 number of shares of common stock outstanding respectively.

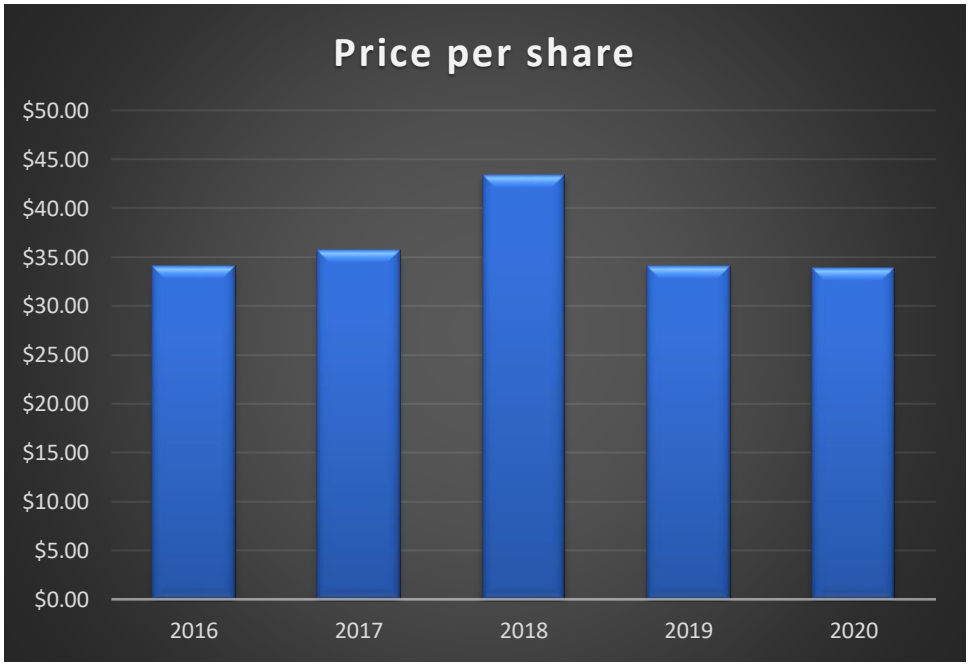
[4] All these figures are given in millions of US dollars

Table 22: Enterprise Value

	2016	2017	2018	2019	2020
Total equity	**203.041**	**213.124**	**241.041**	**189.495**	**188.870**
Add: S-t borrowings	10.688	9.953	8.831	16.195	2.703
Add: L-t debt	31.398	33.538	32.909	35.955	37.133
Total equity and debt	**245.127**	**256.615**	**282.781**	**241.645**	**228.706**
Less: Cash	2.595	1.342	1.139	1.305	1.784
Less: S-t investments	15.255	18.650	17.694	8.525	10.437
Enterprise value (EV)	**227.277**	**236.623**	**263.948**	**231.815**	**216.485**

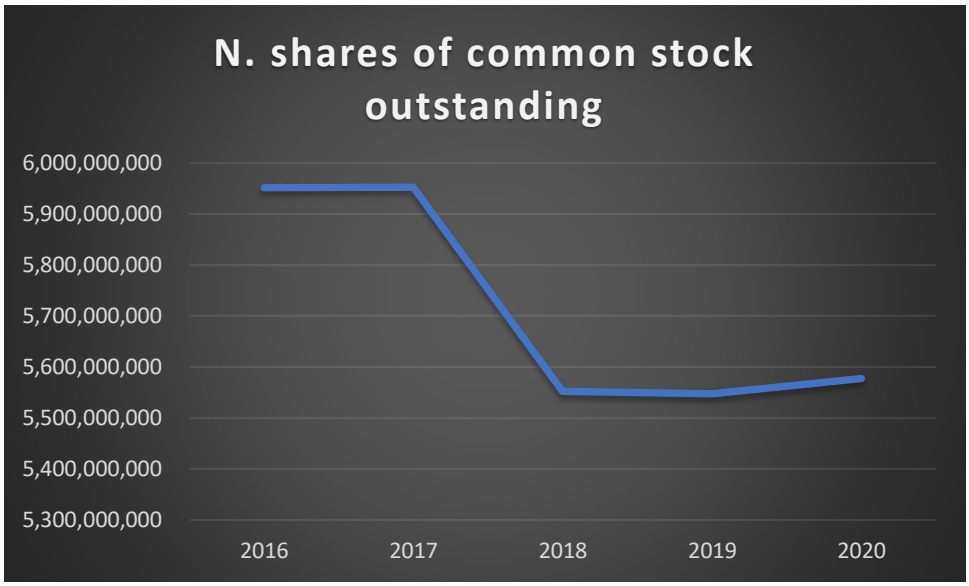
Source: Calculation from Pfizer´s Financial Statements

Figure 10: Price per Share



Source: Calculation from Pfizer´s Financial Statements

Figure 11: Total Number of Shares of Common Stock Outstanding



Source: Calculation from Pfizer´s Financial Statements

8.2 EV to EBITDA

Next, we will analyze the company´s enterprise value to EBITDA ratio. This ratio is key to value different companies in the pharmaceuticals & biotechnology sector, given the fact that the "EV/EBITDA ratio is frequently used in cases of depreciation of particular relevant intangible assets (copyrights, licenses, patents, goodwill), since they are not usually linked with a substantial financial meaning" (Massari *et al.*, 2016). However, this ratio also possesses some constraints. To be exact, it does not take into consideration the changes in the working capital requirements, nor does it take into account the capital investments (Fernandez, 2002).

Regarding Pfizer, we can claim that they show a lot of volatility, whereas their competitors exhibit an ongoing increase from 2016 to 2020. To be more specific, the reason for the decrease of the ratio in 2017 is mainly caused by an EBIDTA increase of 29,75%, while the enterprise value only increased by 4,11% which inevitably led to a lower EV/EBITDA ratio. In contrast to that, Pfizer exhibits an increase in the EV/EBITDA ratio in 2018, which was only slightly below the ratio of their competition with a value of 13,48. This was mainly caused due to the highest enterprise value Pfizer has had in the last 5 years with a value of $263.948 million dollars. Nonetheless, Pfizer did not manage to maintain this figure and dropped to their lowest EV/EBITDA ratio in

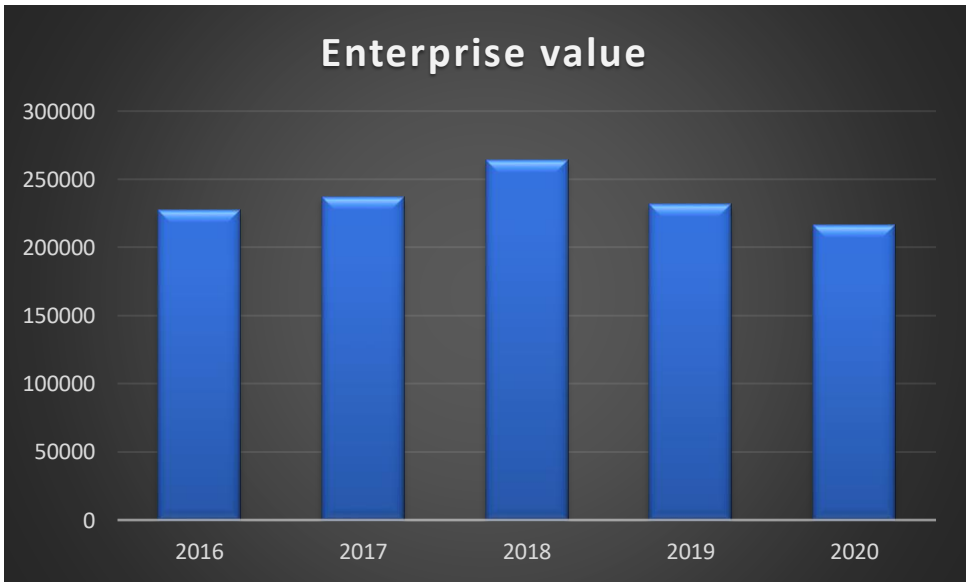
the 5-year span with a value of 9,17. In reference to that, Pfizer opted for decreasing their enterprise value to 231.815 million dollars and was able to increase their EBITDA to 25.266 million dollars, which was the highest EBITDA from 2016 till 2020. Concerning the ratio in 2020, we can witness an increase in the entire pharmaceuticals & biotechnology sector, which can be attributed to the fact that both Pfizer and their competitors suffered a decrease in their EBITDA´s due to the pandemic. Furthermore, we must emphasize the fact that except for 2016 Pfizer is not able to score a higher enterprise value to EBITDA ratio than the pharmaceuticals & biotechnology sector, hence we can state that Pfizer is undervalued in comparison to its competition.

Table 23: Enterprise Value/EBITDA

EV/EBITA	2016	2017	2018	2019	2020
Pfizer	14,86	11,92	13,48	9,17	15,78
Pharma. & Biotech.	13,26	14,37	14,94	15,33	19,73

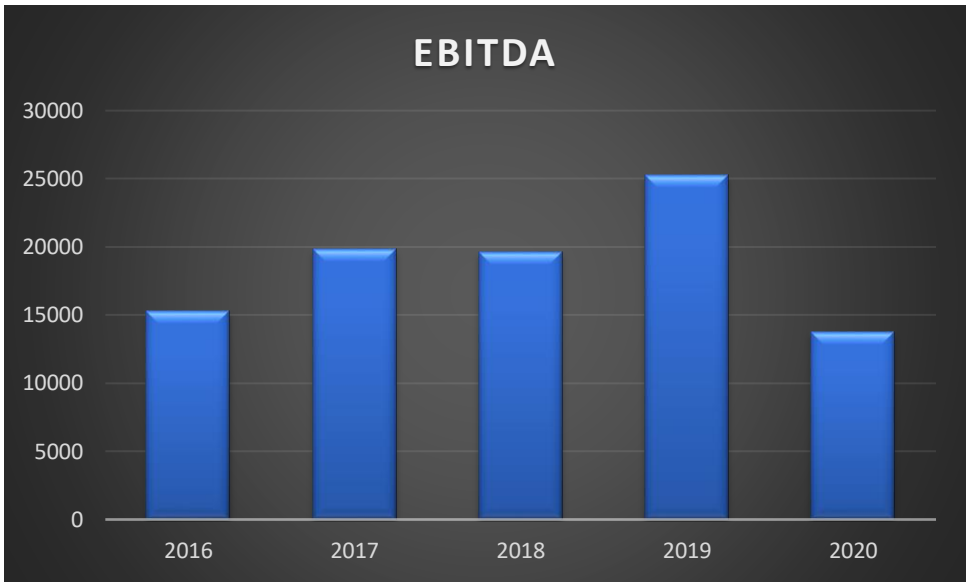
Source: Calculation from Pfizer´s Financial Statements

Figure 12: Enterprise Value



Source: Calculation from Pfizer´s Financial Statements

Figure 13: Earnings before interests, taxes, depreciation, and amortization



Source: Calculation from Pfizer´s Financial Statements

8.3 EV to FCFF

The fourth ratio to analyze is the EV/FCFF [5]multiple, which unlike the ratio we have just analyzed in section 8.2 includes the company´s capital expenditures, as well as its interest expenses net of tax. That is why, this ratio is "regarded as the most complete enterprise value ratio, which has, at the same time, the largest deviation, due to its complex calculation of the denominator" (Schmidlin, 2014). The first thing we can firmly state is that Pfizer, just like their average competitors from the pharmaceuticals & biotechnology sector are exhibiting a continuous increase in their EV/FCFF ratio from 2016 to 2020. However, it is important to emphasize that Pfizer has surpassed their competitors in 2019 and 2020, mainly because of their decrease in their free cash flows to the firm during the last two years. These results are not favorable for Pfizer, because a lower FCFF multiple indicates that the firm is less likely to "expand business operations or pursue other short-term investments" (CFI, 2021). With respect to that, a lower FCFF value leads to a higher EV/FCFF ratio, which means that Pfizer is viewed as a less desirable firm compared to

[5] Enterprise value to Free Cash Flow to the firm

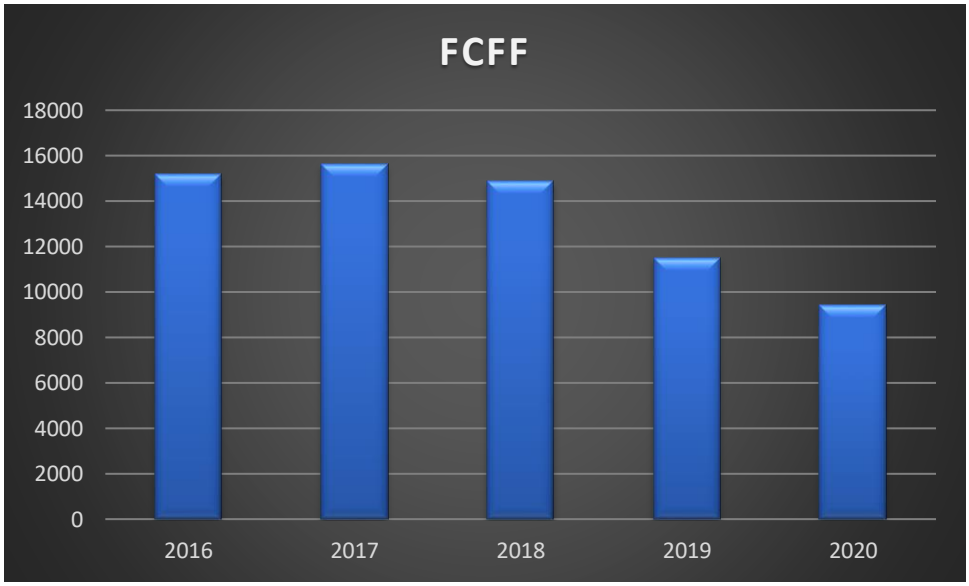
their competition because in case the company is acquired, it is going to take longer to recover the investment due to lower FCFF´s.

Table 24: Enterprise Value/ Cash Flow to the Firm

EV/FCFF	2016	2017	2018	2019	2020
Pfizer	14,94	15,13	17,76	20,14	22,98
Pharma. & Biotech.	17,22	18,99	17,83	19,89	20,73

Source: Calculation from Pfizer´s Financial Statements

Figure 14: Cash Flow to the Firm



Source: Calculation from Pfizer´s Financial Statements

8.4 Price to FCFE

Lastly, we are going to analyze Pfizer´s price-to-free-cash-flow-to-equity ratio by taking a closer look at its values and consequently comparing them to the pharmaceuticals & biotechnology sector. In this case, the free-cash-flow to-equity "is the residual cash flow available to shareholders" (Kumar, 2015) and is computed by using the company's operating cash flow, deducting the firm´s capital expenditures, and lastly adding its net debt. With respect to that, when taking a closer glance at Pfizer´s FCFE, we can state the fact that the company is not able to exhibit constant values from 2016 to 2020. To be more specific, Pfizer even shows a negative FCFE in 2020. As a result, this is reflected in the price-to-FCFE multiple. In this case, Pfizer manages to obtain an increasing trend from 2016 to 2018. Nevertheless, this is the total opposite in 2019 and 2020, which is not

a good sign for the enterprise, because investors are less likely to trust Pfizer if they are not able to achieve a positive FCFE. Nonetheless, we must also concede that 2020 has been a unique year that has led to several unexpected outcomes, which indicates that it is very unlikely to repeat the same figures in the future.

Table 25: Price-to-Free-Cash-Flow-to-Equity

P/FCFE	2016	2017	2018	2019	2020
Pfizer	12,30	16,06	18,96	10,09	—
Pharma. & Biotech.	11,99	16,10	21,97	13,17	18,12

Source: Calculation from Pfizer´s Financial Statements

Table 26: Free-Cash-Flow-to-Equity

	2016	2017	2018	2019	2020
CFO	15.901	16.470	15.827	12.588	10.586
CAPEX	1.999	2.217	2.196	2.594	2.791
Net Debt	2.573	(1.005)	(935)	8.764	(12.755)
FCFE	**16.475**	**13.248**	**12.696**	**18.758**	**(4.960)**

Source: Calculation from Pfizer´s Financial Statements

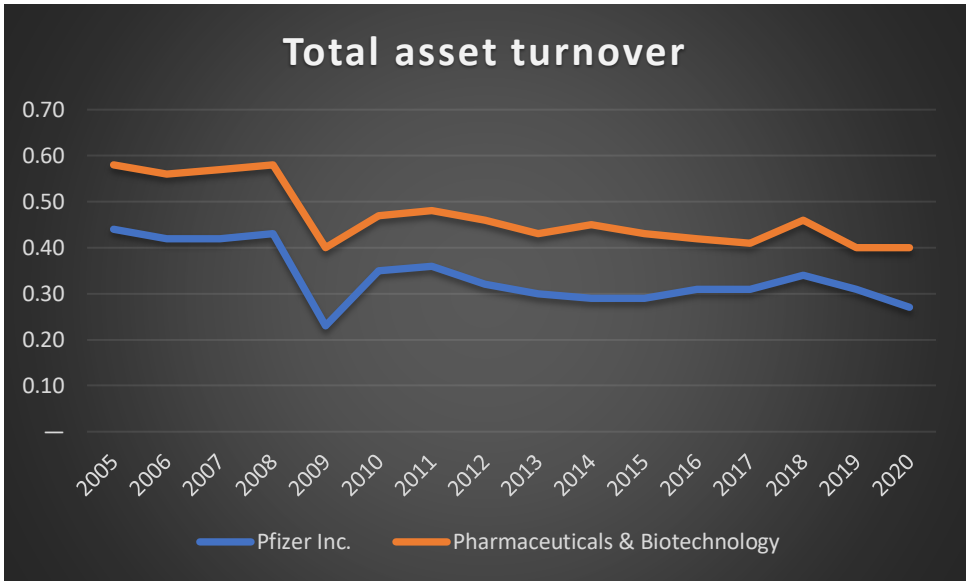
In summary, Pfizer showcases completely different results from 2019 to 2020, than from 2016 to 2018. Firstly, the company exhibits a lower enterprise value in 2019 and 2020, which is mainly caused by both a decrease in its price per share, as well as its total shares of common stock. Secondly, the company shows a higher EV-to-FCFF than its competitors in 2019 and 2020 because of a decrease in its FCFF during those two years, which means that the company is viewed as less desirable compared to its competition because in case the company is acquired, it is going to take longer to recover the investment due to lower FCFF´s. Nonetheless, Pfizer performed a lower EV-to-EBITDA from 2017 till 2020, which indicates that the company is undervalued in comparison to its main competitors. This is a good sign for the company mainly due to the fact that an undervalued company is expected to exhibit a higher value in the future, whereas an overvalued enterprise will showcase a decrease in its value.

9. Long term trends

9.1 Total asset turnover

Concerning the total asset turnover, its purpose is to measure "how all assets owned by a company are operated" (Nurlaela *et al.*, 2019) in order to support the revenues of the company. In this case, we can clearly see that Pfizer follows the same trend as the pharmaceuticals & biotechnology sector, as we can see in the Figure 15 below. However, we also must concede the fact that Pfizer´s total asset turnover has always been less than the average of their competitors. This indicates that Pfizer is less efficient when it comes to exploiting their assets in order to stimulate their sales.

Figure 15: Total Asset Turnover Pfizer vs Pharmaceutical & Biotechnology sector



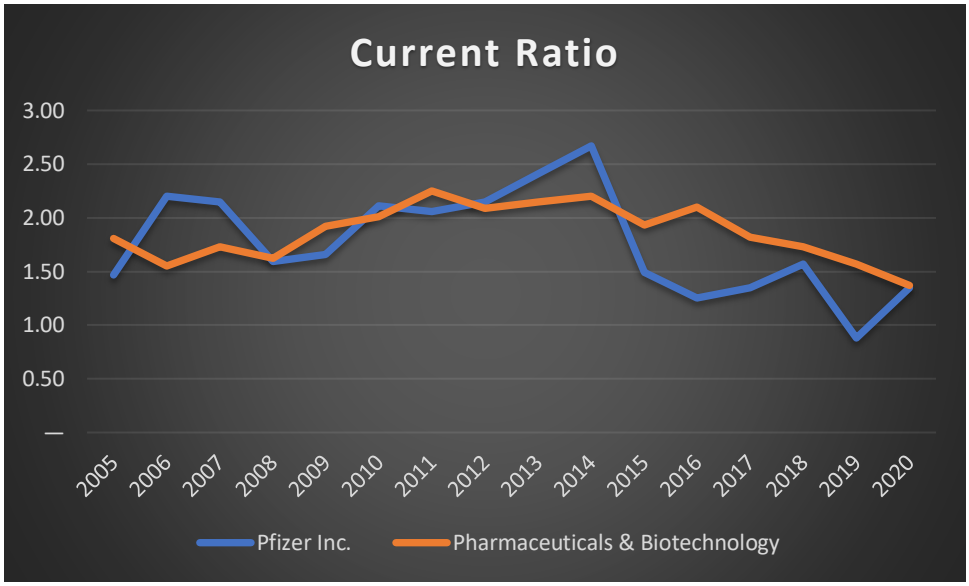
Source: Calculation from Pfizer´s Financial Statements

9.2 Current Ratio

Regarding Pfizer´s current ratio, we can state that the company is exhibiting a lot of volatility when it comes to its liquidity. To be more exact, Pfizer in general terms shows a higher current ratio from 2005 till 2014 than the average of the pharmaceuticals & biotechnology sector, whereas from 2015 till 2020 it showcases a lower current ratio than its competitors. Nevertheless, this is about to change, given the fact that Pfizer is displaying an increase in this ratio from 2019 onwards, because they reduced their short-term debt by 30,52% from 2019 to 2020, while their competitors are displaying a decreasing trend in their current ratio from 2016 till today. Furthermore, we can claim

that Pfizer has been able to cover their current liabilities with their current assets during the last 15 years due to the fact that the ratio has always been above 1, which indicates higher liquidity (Fight, 2005). However, it is also true that they have experienced a decline from 2015 onwards, which is a bad sign, given the fact that a lower ratio implies less security "that the retirement of current liabilities may be made" (Mellen & Evans, 2018).

Figure 16: Current Ratio Pfizer vs Pharmaceutical & Biotechnology sector

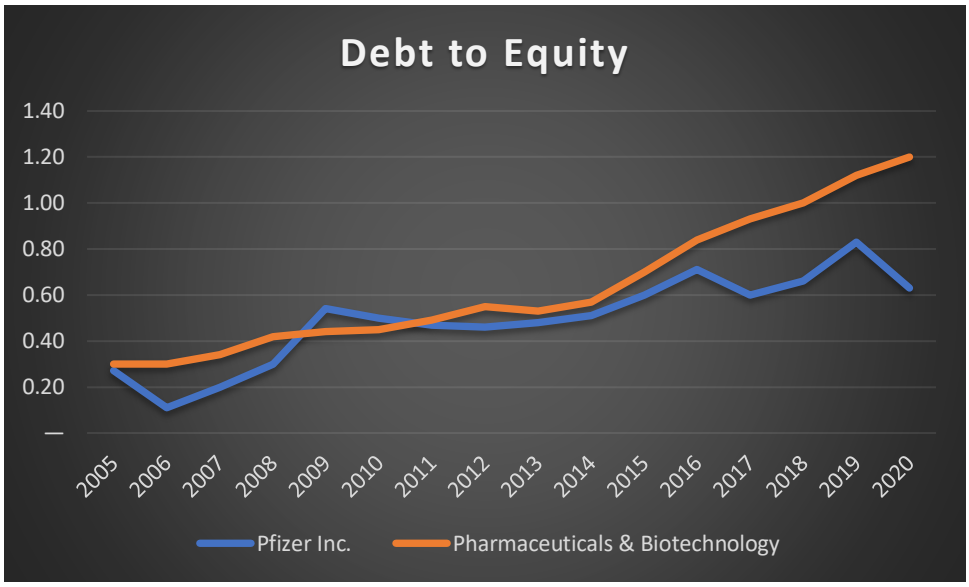


Source: Calculation from Pfizer´s Financial Statements

9.3 Debt to Equity

Next, we will analyze the debt-to-equity ratio. The first thing to point out is that Figure 17 illustrates Pfizer´s lower debt to equity ratio in comparison to the pharmaceuticals and biotechnology sector. Here, we must acknowledge that Pfizer is less leveraged than their average competitors, given the fact that their debt-to-equity ratio is below the sector´s average ratio from 2011 onwards. This means that Pfizer cannot accelerate as many financial objectives through debt as their average competitor, because they will have less access to cash in order to invest in more assets. Nevertheless, we must take into account both sides of the same coin. Having less leverage is also a good sign for the company´s reputation, "because this reduces the probability of bankruptcy and thus reduces the likelihood that management will suffer a loss of reputation associated with controlling a bankrupt firm" (Eckbo, 2008). In other words, it is more likely to trust Pfizer than most of its competitors because they are a more cautious and less risky firm.

Figure 17: Debt-to-Equity Pfizer vs Pharmaceutical & Biotechnology sector

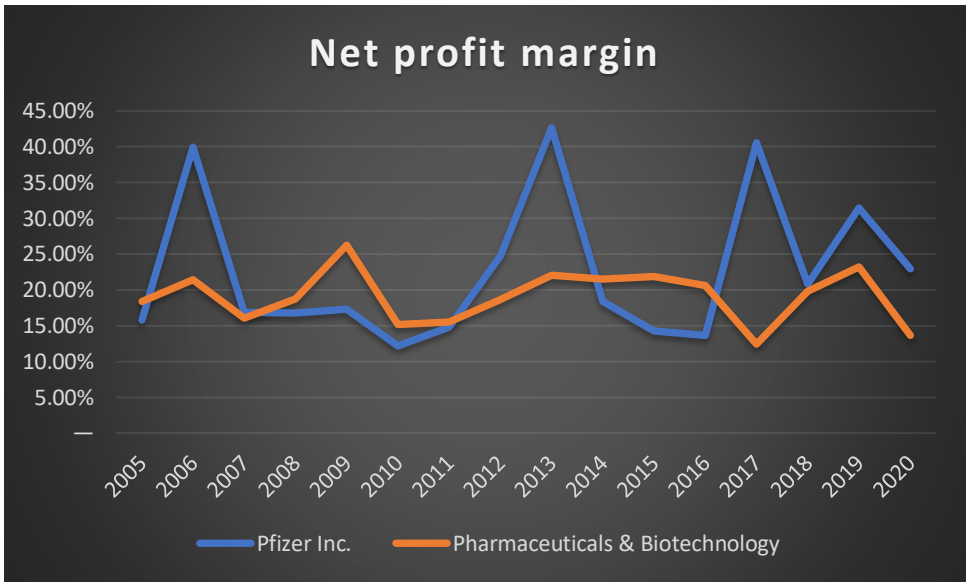


Source: Calculation from Pfizer´s Financial Statements

9.4 Net Profit Margin

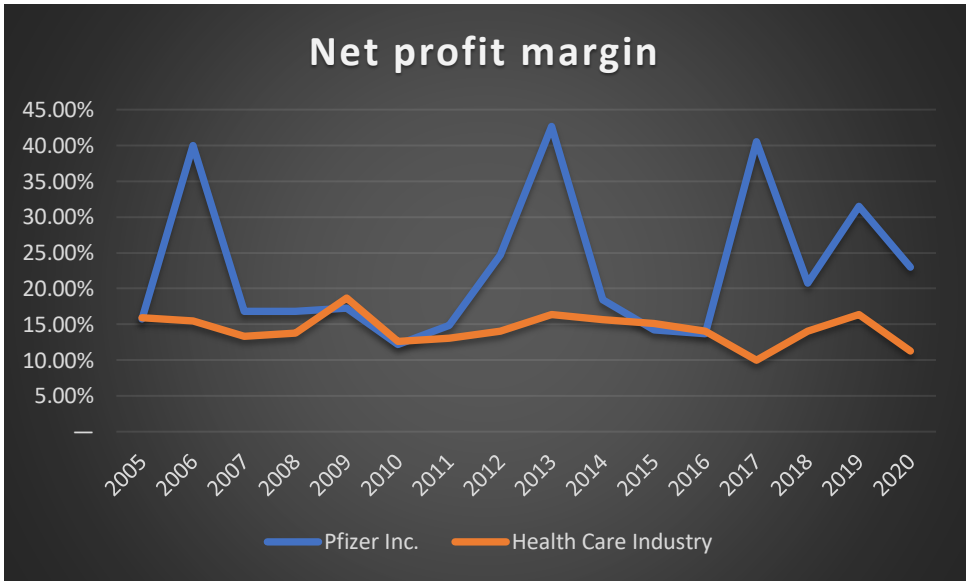
With reference to Pfizer´s net profit margin, we can clearly see that overall they have exhibited higher figures in the last 15 years with respect to not only their pharmaceuticals & biotechnology sector competitors, but also their health industry competitors. In addition to that, we can see in both Figures 18 and 19 that even though Pfizer is showcasing high volatility in their figures, they are still able to surpass their competitors overall during these last 5 years. These are positive signs for the company because it proves that they are more flexible in dealing with their expenses than their competition. As a matter of fact, as mentioned before, Pfizer has suffered a revenue reduction of 19,02% in 2020, which was significantly more than their industry competitors, but they still managed to achieve a higher net profit margin than the industry average due to their flexibility handling costs. This proves that Pfizer has a competitive advantage when it comes to handling and reducing their costs, given their capacity to adapt to difficult situations.

Figure 18: Net Profit Margin Pfizer vs Pharmaceutical & Biotechnology sector



Source: Calculation from Pfizer´s Financial Statements

Figure 19: Net Profit Margin Pfizer vs Health Care Industry

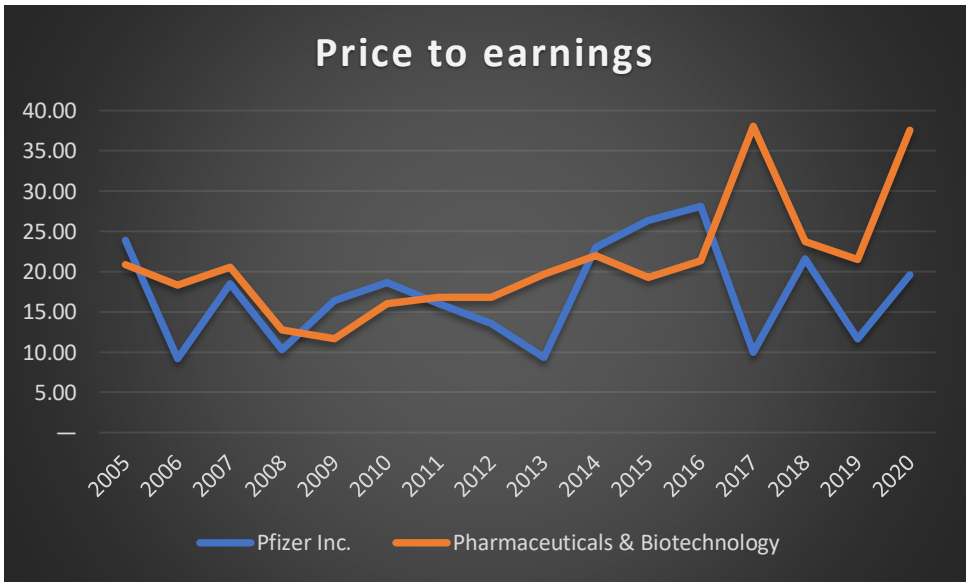


Source: Calculation from Pfizer´s Financial Statements

9.5 Price to Earnings

Next, we must analyze Pfizer´s price to earnings[6], given the fact that this ratio explains the company´s "current market valuation of a company, relative to its earnings" (Schmidlin, 2014). The first thing to acknowledge is that Pfizer generally is performing a lower price-to-earnings ratio than their average competitors during the last 15 years, except for the time period of 2009 till 2010 and 2014 to 2016. In addition to that, we can claim by viewing Figure 20, that the pharmaceuticals & biotechnology sector as a whole is showing quite a lot of volatility. With respect to that, a "common thumb rule in Wall Street is that the growth rate ought to be roughly equal to the P/E ratio" (Kumar, 2015). Therefore, this means that Pfizer is viewed as a riskier company in comparison to its average sector competitors because its price-to-earnings rate is below the average of the pharmaceuticals & biotechnology sector, which usually indicates a lower growth rate for the company than its competition.

Figure 20: Price-to-Earnings Pfizer vs Pharmaceutical & Biotechnology sector



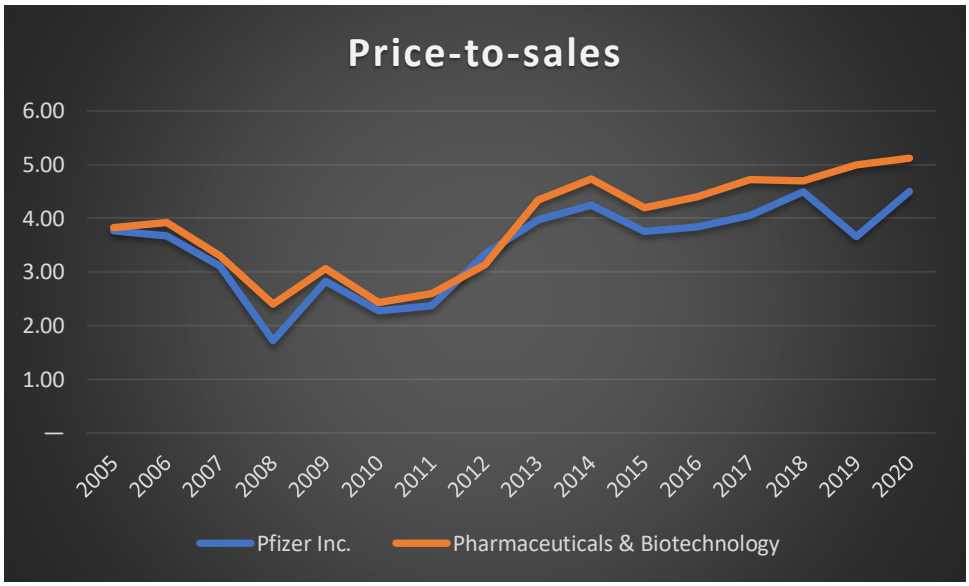
Source: Calculation from Pfizer´s Financial Statements

[6] Price-to-earnings= Share Price/Earnings per Share

9.6 Price to sales

Regarding the enterprise´s price-to-sales ratio[7], we can state the fact that Pfizer is accomplishing very similar results that are slightly below the figures from their average sector competitors from the pharmaceuticals & biotechnology sector in the last 15 years. The main reason to analyze this ratio is because it "measures how much an investor is willing to pay for each dollar of sales. "(Vruwink *et al.*, 2011), in other words, it helps to determine whether a share is cheap or expensive. In this case, unlike the price-to-earnings ratio from the prior section, the entire sector showcases a positive trend since 2008. To be exact, Pfizer has increased from a value of 1,72 in 2008 to 4,5 in 2020, to put it in another way, the value of the price-to-sales ratio has almost increased by 3 in 12 years. Therefore, we can claim that Pfizer´s and their competitors´ price-to-sales have increased significantly because the investors expect the sector to become considerately more relevant in the future. To be more precise, it is no surprise that the price-to-sales ratio is as high as it has ever been because of the Covid-19 pandemic, henceforth we can expect Pfizer to attain an even better result for their price-to-sales ratio for the time ahead.

Figure 21: Price-to-Sales Pfizer vs Pharmaceutical & Biotechnology sector



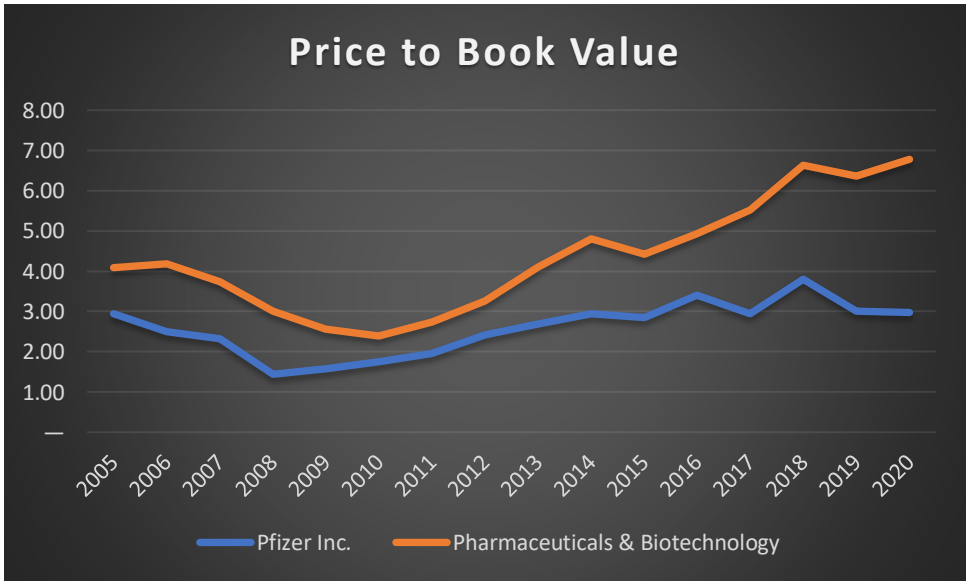
Source: Calculation from Pfizer´s Financial Statements

[7] Price-to-sales= Share Price/ Sales per Share

9.7 Price to book value

Lastly, we are going to examine Pfizer´s price-to-book-value [8]. Regarding the book value per share, it is the amount that would remain "if the company liquidated all of its assets and repaid its liabilities" (CFI, 2021) divided by the total number of common stock outstanding. The first thing to notice when evaluating Figure 22 is that Pfizer´s price-to-book value ratio is clearly lower than the pharmaceuticals & biotechnology sector from 2005 till 2020. This is not a good sign for the company, given the fact that they are displaying clearly worse results than their competition. With respect to that, a "higher P/B ratio reflects expected future prospects on account of perceived growth opportunities or competitive advantages" (Kumar, 2015). Nevertheless, this statement does not reflect Pfizer´s situation, because they clearly underperformed when we compare their figures to their competitors. To be more precise, Pfizer has only increased from a value of 2,94 to 2,98 in 15 years, whereas the average of the pharmaceuticals & biotechnology sector has been able to increase from a value of 4,09 to 6,78 in the same time span. That is why we can assert the fact that Pfizer is predicted to be less likely to have better growth opportunities than their competition.

Figure 22: Price-to-Book Value Pfizer vs Pharmaceutical & Biotechnology sector



Source: Calculation from Pfizer´s Financial Statements

[8] Price-to-book value= Share Price/Book Value per Share

In summary, Pfizer is less efficient when it comes to the exploitation of assets in comparison to its competitors, due to a lower asset turnover in the last 15 years. Furthermore, the company also exhibits a lower current asset ratio from 2014 to 2020, which can be a sign of less security. Nevertheless, Pfizer is a company that prioritizes security over anything else because they showcase a lower debt-to-equity ratio in order to prevent the chance of bankruptcy. Moreover, Pfizer has overall performed better results in its net profit margin than its competitors over the last 15 years, which proves that the company is very flexible when it comes to dealing with its expenses.

10. Valuation in 5 years

One thing that is certain is that the pharmaceutical industry will grow inevitably due to the health crisis. Therefore, we can claim that Pfizer has a good potential to grow significantly in the time to come, nonetheless, the future is unpredictable. For this reason, the paper is going to estimate a moderate, negative, and positive scenario in 5 years for the company.

10.1 Beta Estimation

Regarding Pfizer´s future valuation, we need to calculate its beta. The chosen beta will be calculated based on the S&P 500 stock market, which is an index of the most important "500 widely held stocks on the New York Stock Exchange (NYSE) and NASDAQ" (DeChesare, 2016). With respect to the variance and the covariance, I have used the potential future exposure of the last 59 months, to be more specific from the 29th of February 2016 till 31st of December 2020. The purpose of the beta is "a measurement of the volatility of a given security in comparison to the volatility of the market as a whole, which is known as systematic risk" (Mellen & Evans, 2018). In case the beta is negative, this would imply that investors prefer to buy stock when market prices are falling (Mascareñas, J., 2019). However, this is not the case because our calculated beta gives us a value of 0,63[9]. This implies that Pfizer´s beta is less risky because a "beta of less than 1 means that the security will be less volatile than the market" (Kumar, 2015). However, this also indicates that Pfizer´s lower beta "will likely offer low returns as well" (Booker, 2021).

[9] We calculate the beta by dividing the covariance of the S&P 500 by the variance of the S&P 500

Table 27: Beta based on the S&P 500 stock market

Variance(S&P 500)[10]	19,02
Covariance(PFE, S&P 500)[11]	11,94
β(PFE)	0,63

Source: Calculation from Pfizer´s Financial Statements

10.2 Weighted Average Cost of Capital

The next important tool in order to calculate Pfizer´s value is to discount the free cash flows by "using the weighted average cost of debt and equity or weighted average cost of capital (WACC)" (Fernandez, 2002). In order to calculate the WACC, we must "use as weights debt's and equity's respective contribution to the company's total amount of funds" (Massari *et al.*, 2016). In this case, we employed both Pfizer´s equity and debt at their fair value. Next, we multiply the given weights by their respective required rates of return and sum both results, which inevitably gives us a WACC of 7,10%.

Table 28: WACC

	Value	Weight	Required rate of return
Equity	188.870[12]	0,83	7,98%
Preferred stock (book value)	—	—	—
Debt	39.836[13]	0,17	2,89%[14]
WACC			**7,10%**

Source: Calculation from Pfizer´s Financial Statements

[10] "$\text{Variance}_{S\&P\ 500} = \Sigma(R_{S\&P\ 500,t} – R_{S\&P\ 500})^2 \div (59 – 1)$" (Stock Analysis, 2021)
[11] "$\text{Covariance}_{PFE,\ S\&P\ 500} = \Sigma(R_{PFE,t} – R_{PFE}) \times (R_{S\&P\ 500,t} – R_{S\&P\ 500}) \div (59 – 1)$" (Stock Analysis, 2021)
[12] In millions of US dollars
[13] In millions of US dollars
[14] Weighted average interest rate*(1- Estimated average effective income tax rate)

Table 29: Required Rate of Return

Rate of return on LT Treasury	R(F)	1,25%[15]
Expected rate of return on market portfolio	E[R(M)]	11,98%[16]
Systematic risk of Pfizer Inc.'s common stock	β(PFE)	0,63
Required rate of return on Pfizer Inc.'s common stock[17]	**r(PFE)**	**7,98%**

Source: Calculation from Pfizer´s Financial Statements

Table 30: Weighted Average Interest Rate

Weighted average interest rate	**3,10%**

Source: Finbox

Table 31: Required Rate of Return

	2016	2017	2018	2019	2020
Annual Effective Income Tax Rate	13,45%	0%	5,94%	7,83%	6,36%
Estimated average effective income tax rate					**6,72%**

Source: CSI Market

10.3 Moderate, Negative and Positive Scenario

Next, we will analyze Pfizer´s different growths till the year 2025. In order to do this, we must estimate the future free cash flows by using three different values, namely the last FCFF of 2020 with a value of $9421 million, the WACC at a rate of 7,10%, and the respective growth rates depending on the type of scenario. With the aim of calculating the value of the company, we will employ the discounted cash flow method, which "uses future free cash flow (FCF) projections and discount the cash flow to get the present value that can be used to estimate the potential for investment." (Kumar, 2015). Regarding that, the calculation is based on the discounted cash flow method from Kumar´s Book "Valuation Theories and Concepts" and it works as follows:

[15] Rate of return on Long term Treasury according to Statista
[16] Expected rate of return on market portfolio according to Yahoo.Finance of the S&P 500
[17] R(F)+ β(PFE)*(E[R(M)]-R(F))

$$\sum_{t=1}^{n} \frac{FCFF_t}{(1+WACC)^t} + \frac{FCFF_{n+1}}{(WACC-g)} * \frac{1}{(1+WACC)^n}$$

Regarding the moderate scenario, the chosen value is a constant growth rate of 3,5%. The main reason that the moderate growth rate is 3,5%, is because of the fact that even though Pfizer has increased in popularity and has good growth expectations, we must also take into consideration that there are several factors that hinder their growth in the future, such as "waiving patent protections" (Macias *et al.*, 2021), due to the COVID-19 pandemic. The first step to calculate Pfizer´s price per share is to sum the future cash flows as well as the terminal value and discount them to their present value (Glantz, 2014), which gives us $271.149 million. The next step is to deduct the preferred stock at its book value and the company´s debt at its fair value, which is a result of $231.313 million. The last step is to divide the future value of Pfizer's common stock by the total number of shares[18]. The result is a share price of $41,47, which is higher than the current price per share on May 21st, 2021 with a value of $39,95 per share.

Concerning the negative scenario, the selected rate is a constant growth value of 2,5%, mainly due to fiercer competition. For example, the vaccine competitors are rising over time, which will lead to higher worldwide production and as a result more variety for customers, in other words, Pfizer´s market share for COVID-19 usage will decrease. In this case, Pfizer´s intrinsic value of capital would be $210.103 million, which is an approximate difference of $51.676 million in comparison to the moderate scenario. In addition to that, once we reduce the preferred stock at its book value and the company´s debt at its fair value, the end result of Pfizer´s intrinsic common stock value would be $170.267 million, which will result in a price of $30,53 per share.

Lastly, we must analyze the positive scenario. In this case, the selected value is going to be a constant growth rate of 4,5%. The primary reason for this value, is because Pfizer is very likely to persevere in the production and quality of their Covid-19 vaccine, unlike some of their competitors. For example, the European Union has decided "not to renew AstraZeneca vaccines contract" (Churm, 2021) after June, because several countries claimed that this vaccine was not efficient enough. When taking a closer look at Pfizer´s

[18] I have used the last available number of shares of the 31st of December 2020

intrinsic value of capital, we can clearly see that they would exhibit their highest figure so far with a value of $379.223 million. The next step consists of deducting the preferred stock at its book value and the company´s debt at its fair value, which gives us an intrinsic value of the common stock of $339.387 million and consequently a price of $60,85 dollars per share.

Table 32: All possible Scenarios

Moderate	Intrinsic value of Pfizer's common stock (per share)	$41,47
Negative	Intrinsic value of Pfizer's common stock (per share)	$30,53
Positive	Intrinsic value of Pfizer's common stock (per share)	$60,85

Source: Calculation from Pfizer´s Financial Statements

Table 33: Moderate Scenario

Year	Value	FCFF(t) or TV(t)	Present value at 7.10%
0	FCFF(0)	9421	
1	FCFF(1)	9751	9105
2	FCFF(2)	10092	8799
3	FCFF(3)	10445	8503
4	FCFF(4)	10811	8218
5	FCFF(5)	11189	7942
5	TV(5)	322040	228582
Intrinsic value of Pfizer Inc.'s capital			**271.149**
Less: Preferred stock, no par value, at stated value (book value)			—
Less: Debt (fair value)			39.836
Intrinsic value of Pfizer Inc.'s common stock			**231.313**
Intrinsic value of Pfizer Inc.'s common stock (per share)			**$41,47**
Current share price			$39,95

Source: Calculation from Pfizer´s Financial Statements

Table 34: Negative Scenario

Year	Value	FCFF(t) or TV(t)	Present value at 7.10%
0	FCFF(0)	9421	
1	FCFF(1)	9657	9017
2	FCFF(2)	9898	8630
3	FCFF(3)	10145	8259
4	FCFF(4)	10399	7905
5	FCFF(5)	10659	7566
5	TV(5)	237713	168727
Intrinsic value of Pfizer Inc.'s capital			**210.103**
Less: Preferred stock, no par value, at stated value (book value)			—
Less: Debt (fair value)			39.836
Intrinsic value of Pfizer Inc.'s common stock			**170.267**
Intrinsic value of Pfizer Inc.'s common stock (per share)			**$30,53**
Current share price			$39,95

Source: Calculation from Pfizer´s Financial Statements

Table 35: Positive Scenario

Year	Value	FCFF(t) or TV(t)	Present value at 7.10%
0	FCFF(0)	9421	
1	FCFF(1)	9845	9193
2	FCFF(2)	10288	8970
3	FCFF(3)	10751	8752
4	FCFF(4)	11235	8540
5	FCFF(5)	11740	8333
5	TV(5)	472581	335435
Intrinsic value of Pfizer Inc.'s capital			**379.223**
Less: Preferred stock, no par value, at stated value (book value)			—
Less: Debt (fair value)			39.836
Intrinsic value of Pfizer Inc.'s common stock			**339.387**
Intrinsic value of Pfizer Inc.'s common stock (per share)			**$60,85**
Current share price			$39,95

Source: Calculation from Pfizer´s Financial Statements

10.4 Sensitivity Analysis

Lastly, we will examine Pfizer´s sensitivity analysis, in order to find out "the mathematical change in the final result when there is a variation in one of the key variables underlying the cash flow forecast" (Massari *et al.*, 2016). Concerning the growth rate of the enterprise, it is most likely to be between 2,5% and 4,5%, due to the three possible scenarios described before in section 10.3. In addition to that, the company´s WACC will be between 6% and 8%, due to the fact that Pfizer Inc. have exhibited very similar results with very low fluctuations in terms of their debt-to-equity ratio during the last 5 years. In other words, the firm´s debt and equity weighs will remain very similar, which implies that the WACC is not going to change a lot for the time to come. Regarding Table 36, it highlights a green area that reflects the possible results for Pfizer´s intrinsic value of capital. In this case, when we analyze the green area, we can see that Pfizer would accomplish their best possible result when their WACC is at 6% and the growth rate at 4,5%. However, the worst possible result would be when the enterprise experiences a WACC of 8% and a growth rate of 2,5%. That is to say, the lower the company´s WACC and the higher their growth rate, the higher Pfizer´s intrinsic value of capital will become.

Table 36: Sensitivity Analysis

		Wacc				
Intrinsic value of capital	231.313	5%	6%	7%	8%	9%
Growth rate	2%	166.505	157.769	149.500	141.667	134.244
	2,5%	190.263	180.436	171.135	162.326	153.980
	3%	219.826	208.638	198.051	188.027	178.530
	3,5%	257.615	244.686	232.453	220.873	209.904
	4%	307.614	292.379	277.967	264.325	251.407
	4,5%	376.880	358.446	341.012	324.513	308.891
	5%	479.199	456.038	434.135	413.412	393.794
	5,5%	645.636	614.779	585.604	558.005	531.882

Source: Calculation from Pfizer´s Financial Statements

11. Real Valuation vs Market Valuation

Another key aspect to analyze is to compare Pfizer´s market valuation shown on the New York Stock Exchange and the real valuation calculated before in section 10.3. The main reason for that is to determine whether the company´s stock "is under- or overvalued in order to facilitate" (Kumar, 2015) the company´s long-term investment strategy. In this case, it is important to emphasize the fact that Pfizer´s market valuation on May 21st is 39,95 dollars per share, however, this is susceptible to change in the future. Moreover, we are going to employ the real valuation calculated in the moderate scenario and not in the negative or positive one, mainly due to the fact that it is the most likely foreseeable future. With respect to that, the value of the real valuation is going to be 41,47 dollars per share in 5 years, which is $1,52 more than Pfizer´s market valuation. Therefore, we can state that Pfizer´s value per share is slightly undervalued, hence it is recommended to buy the company´s stock in the upcoming future.

Figure 23: Pfizer´s market value per share on May 21st

Source: Finance.Yahoo

12. Limitations

It is important to emphasize the fact that, due to the distinctive features of the pharmaceuticals & biotechnology sector, and especially when it comes to a company like Pfizer that has significantly increased in popularity in the last months because of their COVID-19 vaccine, the value of the enterprise is susceptible to change. The main problem is that there is a high chance of a fluctuation in value caused by new information published every day, that can alter and influence the enterprise´s value.

13. Conclusions

This academic paper has analyzed the valuation of the American company Pfizer Inc., one of the most important enterprises up to date that has proven to be key in order to restore the world back to normal through their COVID-19 vaccine.

After performing an entire financial analysis of Pfizer´s financial statements, we can all agree that the company is less risky than their main competitors in the pharmaceuticals & biotechnology sector. This is mainly because they finance themselves less through debt, plus they continuously showcase better net profits than their competitors year after year.

When it comes to the valuation of the company, we have calculated three possible scenarios, namely a positive, negative, and moderate one. According to that, after analyzing all three possibilities, we have come to the conclusion that the scenario most likely to happen is the moderate scenario with a value of 41,47 dollars per share, which has proven to be more than the company´s current market value on May 21st, 2021. Nonetheless, the value of the enterprise is susceptible to change on a daily basis because of new information that affects the pharmaceutical industry and consequently Pfizer as well.

In conclusion, based on our analysis, ceteris paribus, Pfizer´s real valuation is slightly undervalued compared to its current market value, and therefore we recommend purchasing the company´s stock.

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15. Appendix

15.1 Appendix 1: Income Statement

	2016	2017	2018	2019	2020
Revenues	52,824	52,546	53,647	51,750	41,908
Cost of sales	(12,329)	(11,240)	(11,248)	(10,219)	(8,692)
Gross profit	**40,495**	**41,306**	**42,399**	**41,531**	**33,216**
Selling, informational and administrative expenses	(14,837)	(14,784)	(14,455)	(14,350)	(11,615)
Research and development expenses	(7,872)	(7,657)	(8,006)	(8,650)	(9,405)
Amortization of intangible assets	(4,056)	(4,758)	(4,893)	(4,610)	(3,436)
Restructuring charges and certain acquisition-related costs	(1,724)	(487)	(1,044)	(747)	(600)
Operating income	**12,006**	**13,620**	**14,001**	**13,174**	**8,160**
Gain on completion of Consumer Healthcare JV transaction	—	—	—	8,086	6
Interest income	470	391	333	226	73
Interest expense	(1,186)	(1,270)	(1,316)	(1,574)	(1,449)
Net interest expense	**(716)**	**(879)**	**(983)**	**(1,348)**	**(1,376)**
Royalty-related income	905	499	495	648	770
Net gains (losses) on asset disposals	171	343	71	31	(237)
Net gains recognized during the period on equity securities	—	—	586	454	540
Net realized losses on sales of investments in debt securities	—	—	(141)	—	—
Income from collaborations, out-licensing arrangements and sales of compound/product rights	—	—	488	168	326
Net periodic benefit credits (costs) other than service costs	—	—	288	(64)	236
Certain legal matters, net	(510)	(240)	(157)	(554)	(28)
Certain asset impairments	(1,447)	(395)	(3,115)	(2,843)	(1,691)
Business and legal entity alignment costs	(261)	(71)	(4)	(338)	—
Net losses on early retirement of debt	(312)	(999)	(3)	(138)	—
Consumer Healthcare JV equity method income	—	—	—	17	298
Other, net	(1,485)	427	359	389	493
Other income (deductions), net	**(3,655)**	**(1,315)**	**(2,116)**	**(3,578)**	**(669)**
Income from continuing operations before (provision) benefit for taxes on income	**8,351**	**12,305**	**11,885**	**17,682**	**7,497**
(Provision) benefit for taxes on income	(1,122)	9,048	(706)	(1,384)	(476)
Income from continuing operations	**7,229**	**21,353**	**11,179**	**16,298**	**7,021**
Income (loss) from discontinued operations, net of tax	16	(1)	9	4	2,631
Gain on disposal of discontinued operations, net of tax	1	3	—	—	—
Discontinued operations, net of tax	**17**	**2**	**9**	**4**	**2,631**
Net income before allocation to noncontrolling interests	**7,246**	**21,355**	**11,188**	**16,302**	**9,652**
Net income attributable to noncontrolling interests	(31)	(47)	(35)	(29)	(36)
Net income attributable to Pfizer Inc.	**7,215**	**21,308**	**11,153**	**16,273**	**9,616**
Preferred stock dividends, net of tax	(1)	(1)	(1)	(1)	—
Net income attributable to Pfizer Inc. common shareholders	**7,214**	**21,307**	**11,152**	**16,272**	**9,616**

15.2 Balance Sheet

	2016	2017	2018	2019	2020
Cash and cash equivalents	2,595	1,342	1,139	1,305	1,784
Short-term investments	15,255	18,650	17,694	8,525	10,437
Trade accounts receivable, less allowance for doubtful accounts	8,225	8,221	8,025	8,724	7,930
Inventories	6,783	7,578	7,508	8,283	8,046
Current tax assets	3,041	3,050	3,374	3,344	3,264
Other current assets	2,249	2,288	2,461	2,600	3,439
Current assets of discontinued operations and other assets held for sale	801	12	9,725	22	167
Current assets	**38,949**	**41,141**	**49,926**	**32,803**	**35,067**
Equity-method investments	—	—	181	17,133	16,856
Long-term investments	7,116	7,015	2,586	3,014	3,406
Property, plant and equipment	13,318	13,865	13,385	13,967	13,900
Identifiable intangible assets	52,648	48,741	35,211	35,370	28,471
Goodwill	54,449	55,952	53,411	58,653	49,577
Noncurrent deferred tax assets and other noncurrent tax assets	1,812	1,855	1,924	2,099	2,383
Other noncurrent assets	3,323	3,228	2,798	4,450	4,569
Noncurrent assets	**132,666**	**130,656**	**109,496**	**134,686**	**119,162**
Total assets	**171,615**	**171,797**	**159,422**	**167,489**	**154,229**
	2016	**2017**	**2018**	**2019**	**2020**
Short-term borrowings, including current portion of long-term debt	10,688	9,953	8,831	16,195	2,703
Trade accounts payable	4,536	4,656	4,674	4,220	4,309
Dividends payable	1,944	2,029	2,047	2,104	2,162
Income taxes payable	437	477	1,265	980	1,049
Accrued compensation and related items	2,487	2,196	2,397	2,720	3,058
Other current liabilities	11,023	11,116	10,754	11,085	12,639
Liabilities held for sale	—	—	1,890	—	—
Current liabilities	**31,115**	**30,427**	**31,858**	**37,304**	**25,920**
Long-term debt, excluding current portion	31,398	33,538	32,909	35,955	37,133
Pension benefit obligations	6,406	5,926	5,272	5,638	4,766
Postretirement benefit obligations	1,766	1,504	1,338	1,124	645
Noncurrent deferred tax liabilities	30,753	3,900	3,700	5,578	4,063
Other taxes payable	4,000	18,697	14,737	12,126	11,560
Other noncurrent liabilities	6,337	6,149	5,850	6,317	6,669
Noncurrent liabilities	**80,660**	**69,714**	**63,806**	**66,738**	**64,836**
Total liabilities	**111,775**	**100,141**	**95,664**	**104,042**	**90,756**
Preferred stock, no par value, at stated value	24	21	19	17	—
Common stock, $0.05 par value	461	464	467	468	470
Additional paid-in capital	82,685	84,278	86,253	87,428	88,674
Treasury stock, shares at cost	(84,364)	(89,425)	(101,610)	(110,800)	(110,988)
Retained earnings	71,774	85,291	89,554	97,670	96,770
Accumulated other comprehensive loss	(11,036)	(9,321)	(11,276)	(11,640)	(11,688)
Total Pfizer Inc. shareholders' equity	**59,544**	**71,308**	**63,407**	**63,143**	**63,238**
Equity attributable to noncontrolling interests	296	348	351	304	235
Total equity	**59,840**	**71,656**	**63,758**	**63,447**	**63,473**
Total liabilities and equity	**171,615**	**171,797**	**159,422**	**167,489**	**154,229**

15.3 Cash Flow Statement

	2016	2017	2018	2019	2020
Net income before allocation to noncontrolling interests	7,246	21,355	11,188	16,302	9,652
Income from discontinued operations, net of tax	—	—	—	—	(2,631)
Net income from continuing operations before allocation to noncontrolling interests	**7,246**	**21,355**	**11,188**	**16,302**	**7,021**
Depreciation and amortization	5,757	6,269	6,384	6,010	4,777
Asset write-offs and impairments	1,613	634	3,398	2,953	2,049
TCJA impact	—	(10,660)	(596)	(323)	—
Gain on completion of Consumer Healthcare JV transaction, net of cash conveyed	—	—	—	(8,233)	(6)
Deferred taxes from continuing operations	(700)	(2,410)	(2,205)	614	(1,468)
Share-based compensation expense	691	840	949	718	756
Benefit plan contributions in excess of income/expense	(712)	(961)	(1,095)	(336)	(1,790)
Other adjustments, net	1,921	107	(1,270)	(1,086)	(478)
Trade accounts receivable	(134)	259	(644)	(742)	(1,249)
Inventories	365	(357)	(717)	(1,050)	(736)
Other assets	(60)	(31)	(16)	795	(146)
Trade accounts payable	871	46	431	(564)	353
Other liabilities	(223)	(67)	98	267	2,741
Other tax accounts, net	(734)	1,446	(78)	(2,737)	(1,238)
Changes in assets and liabilities, net of acquisitions and divestitures	**85**	**1,296**	**(926)**	**(4,031)**	**(275)**
Adjustments to reconcile net income before allocation to noncontrolling interests to net cash provided by operating activities	**8,655**	**(4,885)**	**4,639**	**(3,714)**	**3,565**
Net cash provided by operating activities	**15,901**	**16,470**	**15,827**	**12,588**	**10,586**
Purchases of property, plant and equipment	(1,823)	(1,956)	(2,042)	(2,176)	(2,252)
Purchases of short-term investments	(15,957)	(14,596)	(11,677)	(6,835)	(13,805)
Proceeds from redemptions/sales of short-term investments	29,436	10,307	17,581	9,183	11,087
Net (purchases of) proceeds from redemptions/sales of short-term investments with original maturities of three months or less	(4,218)	2,058	(3,917)	6,925	920
Purchases of long-term investments	(8,011)	(3,537)	(1,797)	(201)	(597)
Proceeds from redemptions/sales of long-term investments	11,254	3,594	6,244	232	723
Acquisitions of businesses, net of cash acquired	(18,368)	(1,000)	—	(10,861)	—
Acquisitions of intangible assets	(176)	(261)	(154)	(418)	(539)
Other investing activities, net	52	650	287	206	275
Net cash (used in) provided by investing activities	**(7,811)**	**(4,741)**	**4,525**	**(3,945)**	**(4,188)**
Proceeds from short-term borrowings	7,472	8,464	3,711	16,455	12,352
Principal payments on short-term borrowings	(5,102)	(9,990)	(4,437)	(8,378)	(22,197)
Net proceeds from (payments on) short-term borrowings with original maturities of three months or less	(3,084)	1,401	(1,617)	2,551	(4,129)
Proceeds from issuances of long-term debt	10,976	5,274	4,974	4,942	5,222
Principal payments on long-term debt	(7,689)	(6,154)	(3,566)	(6,806)	(4,003)
Purchases of common stock	(5,000)	(5,000)	(12,198)	(8,865)	—
Cash dividends paid	(7,317)	(7,659)	(7,978)	(8,043)	(8,440)
Proceeds from exercise of stock options	1,019	862	1,259	394	425
Other financing activities, net	(196)	(233)	(589)	(735)	(870)
Net cash used in financing activities	**(8,921)**	**(13,035)**	**(20,441)**	**(8,485)**	**(21,640)**
Net cash provided by operating activities from discontinued operations	—	—	—	—	3,817
Net cash used in investing activities from discontinued operations	—	—	—	—	(83)
Net cash provided by financing activities from discontinued operations	—	—	—	—	11,991
Net cash provided by discontinued operations	**—**	**—**	**—**	**—**	**15,725**
Effect of exchange-rate changes on cash and cash equivalents and restricted cash and cash equivalents	(215)	53	(116)	(33)	(8)
Net increase (decrease) in cash and cash equivalents and restricted cash and cash equivalents	**(1,046)**	**(1,253)**	**(205)**	**125**	**475**
Cash and cash equivalents and restricted cash and cash equivalents, at beginning of period	3,641	2,595	1,430	1,225	1,350
Cash and cash equivalents and restricted cash and cash equivalents, at end of period	**2,595**	**1,342**	**1,225**	**1,350**	**1,825**